

NAVAL POSTGRADUATE SCHOOL

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THESIS

**A SYSTEM ANALYSIS OF THE RECRUITMENT AND
RETENTION PROBLEMS ASSOCIATED WITH THE
PROGRAM MANAGER FOR CHEMICAL
DEMILITARIZATION ORGANIZATION**

by

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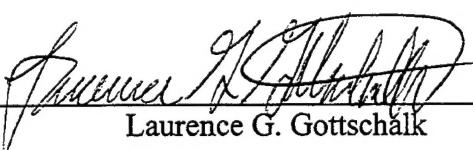
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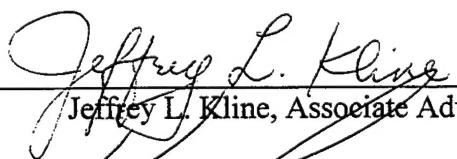


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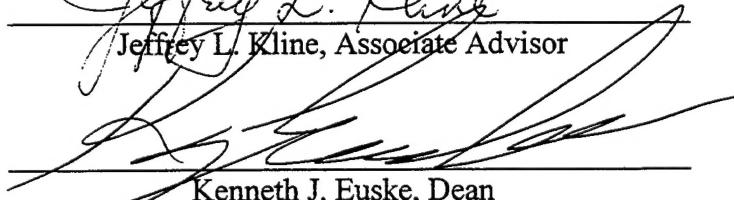
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ABSTRACT

The primary purpose of this thesis is to investigate the problems of retaining qualified personnel in the Program Manager for Chemical Demilitarization organization through the end date of the program. To accomplish this the Program Manager for Chemical Demilitarization organization was analyzed from an open system prospective to identify the elements within the organization, and in the larger organizational environment, that are expected to contribute to the retention problem. In addition the current Program Manager for Chemical Demilitarization workforce demographics were examined and a survey was performed to determine relevant retention and recruitment policies for the Program Manager for Chemical Demilitarization.

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I. INTRODUCTION

A. PURPOSE

The purpose of this thesis is to analyze the United States Army Program Manager for Chemical Demilitarization (PMCD) organization to gain knowledge and perspective of the imminent problem of retaining its qualified Government personnel, particularly in the waning years of the program. An analysis of the organizational structure and the inherent organizational relationships will aid in understanding the probable behavior patterns, allow the prediction of possible outcomes to the various factors affecting the organization, and identify specific areas of concern. An analysis of the specific organizational demographics will help quantify the problems chronologically, by the affected years, by job series, and by organizational element to make specific recommendations for implementation by the Program Manager (PM).

B. BACKGROUND

Within the next five years about one third of all current Government employees will be eligible to retire [Ref. 1]. An additional twenty percent will be eligible for early retirement. It has become increasingly difficult to attract and maintain experienced high quality personnel in the Federal Government workforce. Several factors have contributed to this result. The abolition of the Civil Service Retirement System (CSRS) in favor of the Federal Employee Retirement System (FERS) has made the transition from Government to private sector more attractive for Government employees because of competing opportunities, salaries and benefits in the commercial sector. The generally favorable economy of the last decade has provided increased opportunity for employment in the private sector. This increase in the commercial job market coupled with ten years of Government downsizing has resulted in the elimination of roughly 420,000 civilian

positions since 1990 [Ref. 2]. In many cases Government downsizing was performed at the expense of hiring. When a person retired from an agency, rather than replacing the person through promotions and restocking the organization with trainees and upward mobility hires, the higher graded positions were abolished. As a result the average age of the civilian workforce in the Army Materiel Command (AMC), for example, the Army's chief civilian employer, is now over 48 years old. Even more indicative of this problem is the fact that less than twelve percent of the AMC civilian workforce is under age 40. Government organizations must now compete with both industry and other government agencies for experienced personnel and new recruits. In this environment the PMCD is faced with the responsibility of maintaining the appropriate level of qualified government personnel throughout the life of the Chemical Demilitarization Program. This presents a significant challenge to the Program Manager to fill and keep critical qualified personnel in an array of programs that have a fixed and imminent end date.

The PMCD was established in 1985 when the Congress passed Public Law 99-145 directing the Army to destroy the U.S. stockpile of obsolete chemical agents and munitions. The stockpile consists of rockets, bombs, projectiles, spray tanks, and bulk containers, which contain nerve and mustard agents. It is stored at eight sites in the continental United States and on Johnston Atoll in the Pacific Ocean. Recognizing that the stockpile program did not address all chemical warfare materiel requiring disposal, the Congress again directed the Army in 1992 to plan for the disposal of materiel not included in the stockpile. This materiel, some of which dates back as far as World War I, consists of binary chemical weapons, miscellaneous chemical warfare materiel, recovered chemical weapons, former production facilities, and buried chemical warfare materiel. In

1992, the Army established the Non-Stockpile Chemical Materiel Program to dispose of this materiel. New requirements again emerged with the ratification of the Chemical Weapons Convention treaty in April of 1997. PMCD is required to accomplish its mission within the confines of the CWC treaty schedule and milestones. The present PMCD organization consists of four subordinate project/product managers: the Chemical Stockpile Disposal Project (CSDP), the Alternative Technologies & Approaches Project (ATAP), the Non-Stockpile Chemical Materiel Project (NSCMP), and the Product Manager for Cooperative Threat Reduction (PMCTR).

The CSDP is tasked with the operation of nine chemical demilitarization facilities at nine separate locations. Each of these facilities will operate until all of the chemical weapons that are currently stored at the site have been destroyed. In addition the CSDP must also address the problem of closing each chemical demilitarization plant, which will include decontamination, demobilization, destruction and possibly demolition and site restoration. The ATAP is responsible for planning the necessary activities to pilot test two neutralization-based processes for the disposal of distilled mustard agent and nerve agent VX stored at Aberdeen Proving Ground, Maryland, and Newport Chemical Depot, Indiana, respectively. Once the technologies have been selected and tested, the operation of the facilities becomes the responsibility of the CSDP. The NSCMP mission is to provide centralized management and direction to the Department of Defense for disposal of Non-Stockpile Chemical Materiel in a safe, environmentally sound, and cost-effective manner. This mission has developed into support for the destruction of all non-stockpile materiel in compliance with the international CWC treaty. The mission of the Product Manager for Cooperative Threat Reduction (PMCTR) is to provide life cycle

management and execution of all approved DoD support activities to non-U.S. chemical weapons (CW) destruction programs. This includes support to the United Nations in the form of technical guidance, and advice to U.S. negotiators on issues related to the destruction of CW. Each of the four programs referenced above support the CWC treaty, and as such, they are all designated to complete Chemical Warfare Materiel (CWM) destruction and end upon conclusion of this treaty on 29 April 2007. After the treaty end date closure and demobilization activities will continue for a limited time. The current program schedules estimate the closure and demobilization activity duration at about three and a half years, extending the administrative life of the program through 2011.

This thesis will analyze the PMCD organization, focusing on the congruence of the organization's formal work unit relationships to determine if they are a causal factor contributing to the problem of retention. This knowledge can then be applied to predict various organizational behaviors, in particular those that affect the retention of skilled personnel, and to determine the best use of PMCD resources to alleviate this problem.

C. AREA OF RESEARCH

The general area of research will be an analysis of the PMCD organization relating to the staffing and retention problems of a highly unique "sunset" Department of Defense program. The PMCD mission requires a high level of non-transferable skills. The relevant technical expertise required to sustain the capability to destroy military chemical weapons and related materiel is not readily available or supported by standard commercial enterprise. In addition the PMCD chemical weapons destruction mission has a definitive end date of 29 April 2007 mandated by the CWC treaty. Although many aspects of the program, such as plant closures and system decommissioning, will

continue for a limited time after the treaty deadline, there exists a definite end date when the PMCD ceases to exist. This creates motivational and retention problems for the organization as personnel, seeing no continuing PMCD mission, will begin to look for employment elsewhere. A key concern in this analysis is the PM's ability to retain skilled personnel in the later years of the program.

The objective of this thesis is to examine these and other significant organizational symptoms and to develop a strategy to quantify the problems, predict future outcomes, and propose recommendations to mitigate the detrimental effects on the program.

D. RESEARCH QUESTIONS

1. Primary Research Question:

What factors of the Program Manager for Chemical Demilitarization (PMCD) organization affect the recruitment and retention of personnel, and how can the PMCD address these factors to ensure adequate coverage during the waning years of the Chemical Demilitarization program?

2. Subsidiary Research Questions:

- What are the key PMCD organizational components to include the mission and task, the basic characteristics of the individuals in the organization, and the structure of the formal organization?
- What are the key PMCD organizational outputs indicated by the system frameworks model, to include the organization, group, and individual characteristics?
- What are the relationships of the various organizational components? Are there any incongruences of the PMCD organizational components that affect the recruitment and retention of personnel in PMCD?

- When can the PM for Chemical Demilitarization expect to face retention difficulties given the current PMCD organizational demographic and programmatic mission schedule?
- Which job classification series within the PMCD are more at risk for retention difficulties?
- Which organizational elements are most affected by retirement?
- Which incentive policies and programs for retention in the federal Government that are currently available to the PM for Chemical Demilitarization will be most effective given the demographics of the individuals in the PMCD organization as defined in this analysis?

E. SCOPE AND LIMITATION

The scope of the analysis will be limited to the analysis of the current PMCD organization's Government employees (as of the Nov 7, 2000 Table of Distribution and Allowances (TDA) [Ref. 3]), which includes the matrix employees assigned to the PMCD, and the field office personnel that support the PMCD organization at the sites of the nine plants that are in construction or operation at various locations across the United States and associated territories. The PMCD TDA or Personnel Status Report lists the required, authorized and actual positions assigned to the PMCD. This organization is made up of several supporting staff offices and the four Project/Product Manager offices mentioned previously. The current staffing levels, job series and organizational structure are defined by the Nov 2000 TDA. These figures are compared to the PMCD mission and staffing plans and schedules as defined in the PMCD Management Plan dated November 1999 [Ref. 4]. This thesis compares the current PMCD future year staffing plan as of Dec 2000 [Ref. 5], with the predicted rates of retirement for each future year through the life of the program as defined by the CWC treaty (May 2007) and through to program completion in 2011.

F. RESEARCH METHODOLOGY

The information used in this thesis was obtained through several separate data collection efforts. The first method was a search of the Internet, books, and periodicals covering the topics of recruitment, retention and motivational factors. Another search covered demographic statistics of the government workforce and current recruitment and retention policies. The second approach involved a review of current regulations, policies, textbooks and relevant class materials. A third method involved the compilation of a database from various PMCD personnel records and files to compile a unique database of suspect retention and motivational factors. A fourth and final method was the use of personnel interviews and a survey to obtain data on more difficult concepts and to fill in gaps in the database. This thesis will result in an analysis of the PMCD organization utilizing the Nadler and Tushman Model for Diagnosing Organizational Behavior [Ref. 6], which will explore the congruency of the organizational factors to determine problem areas by adequacy of fit. The thesis will conclude by providing recommendations to aid the PMCD, and future organizations faced with similar issues, on how to better prepare for the transition of program termination.

G. THESIS ORGANIZATION

This thesis is divided into six chapters. Chapter II provides an overview of basic human motivational and retention factors. It also discusses the downsizing issue affecting the government workforce and its applicability to retention and motivation. It concludes with an overview of the Nadler and Tushman model for diagnosing organizational behavior [Ref. 6].

Chapter III discusses the specific details of the techniques used to generate the personnel database, the survey analysis, and other supporting documentation used in the organizational analysis.

Chapter IV provides an overview and description of the current policies and programs that are in effect for recruiting and retaining government personnel.

Chapter V is the case study of the PMCD organization utilizing the Nadler and Tushman Model for Diagnosing Organizational Behavior [Ref. 6]. This analysis utilizes a test of the congruencies of the organizational elements to qualify problems, predict future outcomes, and make recommendations on where to direct resources to mitigate the detrimental effects identified in the PMCD program. The analysis also provides a structure for the general overview of the PMCD organization, to include the current staffing authorizations, staffing levels and vacancies, and organizational and functions.

Chapter VI is an analysis of the survey data presented in chapter III. This chapter defines the demographics and preferences of the PMCD organization and employees. Also provided in this chapter is an evaluation of the suitability of the current policies for recruitment and retention for the PMCD organization.

Chapter VII contains general and specific conclusions. This chapter analyzes the suitability and effectiveness of current recruitment and retention policies for implementation by PMCD to correct the organizational conditions highlighted by the Nadler and Tushman model. It concludes with recommendations on the implementation of specific existing policy or proposed policy to mitigate recruitment and retention problems throughout the PMCD program life.

H. BENEFITS OF THE STUDY

The benefit of this study is to derive recommendations for the PMCD that if implemented will minimize the effects of the attrition of experienced personnel during the waning years of the program. Any PM with a similar transitional mission end date and staffing concerns could benefit from this analysis and subsequent recommendations. These recommendations can also be used to adapt policies at the Army Materiel Command, the Department of the Army, and the Department of Defense to address the plight of similar Program Manager organizations.

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II. RETENTION PROBLEMS IN THE FEDERAL GOVERNMENT

A. FACTORS AFFECTING RECRUITMENT AND RETENTION

There are several factors that play a part in the retention of human resources within an organization. Several theories concerning the genesis and relative importance of these factors are presented in the field of Behavioral Science. Behavioral Science is a body of theoretical knowledge that attempts to explain human behavior as a part of a larger system, in this case human behavior as part of an organization. There are many theories used to describe these relationships. Four theories that describe the evolution of this topic are described in the following paragraphs.

One of the first studies of systematic human behavior occurred between 1927 and 1932 when Elton Mayo and his colleagues at the Harvard Business School conducted research at the Hawthorne Works of the Western Electric Company. This collective body of work is known as the Hawthorne Studies. The original intent of the studies was to analyze the effect that lighting and other physical factors had on the output of a selected group of factory production-line workers. Instead the Hawthorne studies indicated that there were complex relationships at work within the group that overshadowed the effects of the physical factors being analyzed. There were three key findings resulting from the Hawthorne Studies:

1. The industrial work group is a human social group, and group behavior phenomena have a powerful influence upon individual members. It is not sufficient to consider the man-at-work as an autonomous economic individual.
2. The work group, as a human social group, appears to fill legitimate human needs on the job – needs which heretofore, if they were considered at all, were felt to be the legitimate concern of the family, the church, or fraternal organizations.

3. The work group can be a powerful force for or against productivity, but because of inept management, it usually engages in practices such as banking, restriction of output, and the substitution of informal leaders for management leadership – all to protect group members from external threat and promote group solidarity. [Ref 7: pp. 7-6]

The Hawthorne Studies established that there was a relationship between the social organization and the workers. Knowing that they were being studied made the workers feel special and increased their productivity. The social factors overrode the physical factors in determining the actual job performance. It indicated that there were many factors that needed to be considered when analyzing organizational outputs. As a result the Hawthorne Studies attracted many other behavioral scientists to the industrial and organizational environment.

Abraham Maslow in the middle 1940s presented another human behavior theory, called the theory of human needs. This theory posited a hierarchy of human needs. The theory holds that individuals are motivated by lower order needs until these needs are relatively satisfied, at which time higher order needs are evoked. This theory suggests that in the relatively affluent society of today management, who has focused on lower order needs, must be more concerned with higher order needs to effect a positive change in motivating their workforce.

By the mid-1950s, another concept of human behavior was introduced by Douglas McGregor referred to as “theory X and theory Y”. McGregor labeled theory X as the traditional pessimistic assumption about human behavior held by most managers at that time. These assumptions were stated as follows:

1. The average human being has an inherent dislike of work and will avoid it if possible.

2. Because of this human characteristic of dislike of work, most people must be coerced, controlled, directed, and threatened with punishment to get them to put forth adequate effort toward achievement of organizational goals.

3. The average human being prefers to be directed, wishes to avoid responsibility, has relatively little ambition, and wants security above all. [Ref. 7:pp. 7-6]

McGregor's theory held that these assumptions led to a management strategy of direction and control. That is to say that management's job is to tell people exactly what to do and when and how to do it. McGregor also pointed out that by imposing controls to enforce this direction it becomes a self-fulfilling prophecy. In order to break this circle McGregor proposed his theory Y assumptions listed below:

1. The expenditure of physical effort in work is as natural as play or rest. The average human being does not inherently dislike work. Depending upon controllable conditions work may be a source of satisfaction (and will be voluntarily performed) or a source of punishment (and will be avoided if possible).

2. External controls and the threat of punishment are not the only means for bringing about effort towards organizational objectives. Man will exercise self-destruction and self-control in the service of objectives to which he is committed.

3. Commitment to objectives is a function of the rewards associated with their achievement. The most significant of such rewards, e.g., the satisfaction of ego and self-actualization needs, can be direct products of effort directed toward organizational objectives.

4. The average human being learns under proper conditions not only to accept but to seek responsibility. Avoidance of responsibility, lack of ambition, and emphasis on security are generally consequences of experience, not inherent human characteristics.

5. The capacity to exercise a relatively high degree of imagination, ingenuity, and creativity in the solution of organizational problems is widely, not narrowly, distributed in the population.

6. Under conditions of modern industrial life, the intellectual potentials of the average human being are only partially utilized [Ref. 7: pp. 7-8].

The theory Y assumptions support McGregor's management strategy of the integration of goals and self-control. He postulated that management's role is to create conditions under which an individual can integrate their personal goals with those of the organization to achieve mutual achievement of both. This concept was further developed by Frederick Herzberg and his colleagues at Western Reserve University in their research on motivation to work.

It had been postulated for a long time that productivity was positively related to a worker's happiness or satisfaction. To test this theory Frederick Herzberg surveyed over 150 studies that had been made on the subject of happiness or satisfaction of workers. On the surface his survey revealed no correlation between satisfaction and productivity. Some factors he had considered correlated positively, but others did not. There were inherent flaws in the study including the difficulty of operationally defining happiness and satisfaction in a quantitative way. As a result Herzberg and his colleagues developed a new theory that postulated that there are at least two major categories of factors affecting the motivation to work: dissatisfiers or hygiene factors, and satisfiers or motivators. Dissatisfiers are those things defined as extrinsic to or surrounding the job. They encompass the traditional management rewards such as, pay and benefits, company practices, boss relationships, and basic working conditions. As a source of rewards they operate in a negative fashion, such that if they are fulfilled they produce a neutral situation. However if they are not satisfied up to some point that the worker views as equitable, they are a source of negative motivation and conflict. Factors labeled satisfiers or motivators are defined as intrinsic to the job. These factors are the positive motivators

of the job. This category includes; recognition, sense of achievement, sense of responsibility, pride in work accomplishment, and advancement opportunity. It is important to note that in this theory if the hygiene factors are not satisfied the motivators can not be satisfied, and conversely over-satisfaction of the hygiene factors will yield no positive results in the form of additional productivity.

The survey questions presented to the PMCD workforce were derived from Herzberg's categories of factors affecting motivation. It is postulated that many of the factors affecting recruitment and retention in the PMCD organization are related to the motivation and satisfaction factors presented in the previous discussion.

B. THE DOWNSIZING ISSUE IN GOVERNMENT

Another important issue affecting the recruitment and retention of personnel in the PMCD organization is the larger issue of downsizing in the Federal Government. Propelled by the end of the cold war, taxpayers have demanded a benefit derived from the draw down of military requirements. The resulting downsizing, restructuring, and automation resulted in a reduction of 351,000 positions in the Federal Government between 1993 and 1998 [Ref. 8:p. 2]. Of these, 231,000 (67 percent) were cut from agencies in the Department of Defense. This downsizing was meant to target headquarters positions, high-grade levels, supervisory positions, and administrative positions in departments such as budget, procurement, and human resources. However, these reductions were accomplished with tools like optional buyouts that were not specifically targeted to those positions performing this "unnecessary" work. As a result the effects of the downsizing did not achieve the desired outcome [Ref. 8:p 2].

While downsizing achieved the primary goal of reducing the federal payroll, it also produced unanticipated negative results as well. Two reports from the Center for Human Resources Management at the National Academy of Public Administration analyzed the effects of downsizing on the Federal government over the last decade. The first report titled "Downsizing the Federal Workforce: Effects and Alternatives" [Ref. 9] analyzes the results of downsizing in the private sector as well as the Federal government and concludes that downsizing did not always cut costs. It frequently had a negative effect on the productivity of an organization, and resulted in long term morale problems. Downsizing also increased human resource costs for training, overtime, contingent workers, average salary, and the costs associated with a reduction-in-force. The second report titled, "The Case for Transforming Public-Sector Human Resources Management [HRM]," [Ref. 8] updates the original report, written in 1997, and provides additional insight. It concludes that as a result of downsizing between 1990 and 1998, numerous agencies lost a substantial part of the generation that began Federal careers in the 1960s.

These employees represented a disproportionate share of the knowledge and expertise that existed in the workforce. They had been mentors, coaches, and models for the employees they left behind. Succession planning, internships, apprenticeships, and other developmental programs were disrupted, or not started at all [Ref. 8:p. 2].

The report found that many agencies had not kept pace with the private sector because of regulations and procedures that slowed hiring.

The ability of federal agencies to respond to the downsizing challenge was severely limited by both perceived and actual barriers that exist in the present HRM system. Systems are considered by managers to be too complex and inflexible and accountability for performing major HRM functions such as hiring, classification pay, performance management, human resource development and discipline is unclear. These factors severely diminished HRM's effectiveness. [Ref. 8: p. 3].

As a result many Government agencies are competing for an ever decreasing and less diversified workforce.

C. THE NADLER AND TUSHMAN MODEL FOR DIAGNOSING ORGANIZATIONAL BEHAVIOR

1. The Premise of the Model

In order to analyze the PMCD organization this thesis utilizes the congruence model for organizational behavior as developed by David A. Nadler and Michael Tushman [Ref. 6]. This model provides a way of systematically thinking about behavioral relationships in the organization, and a basis for organization of the data within which the results of the research presented can be analyzed and expressed [Ref. 6]. The basic premise of the model is that, for organizations to be effective, their subparts or components, defined in the model, must be consistently structured and managed to reach a state of congruence [Ref. 6:p. 92].

2. Basic Assumptions of the Diagnostic Model

The diagnostic model operates under several underlying assumptions. The first assumption is that organizations are dynamic entities. This model allows for change in the underlying activities that affect the organization. The second assumption is that organizational behavior exists at multiple levels in the organization. Specifically this model analyzes behavior at three levels, that of the individual, the group, and the organizational system as a whole. The third assumption is that organizational behavior does not occur in a vacuum. The implication is that there are several factors acting upon each other that determine the organizational behavior, and that any analysis of behavior must take into account each of these various components and their relationships. The final assumption in the Nadler and Tushman model is that organizations have the

characteristics of an open social system. That is, they are composed of interrelated components that interact with a larger environment outside the organization.

3. Open System Theory

The concept of the open system theory is a crucial one to the Nadler and Tushman model. A closed system does not react with the environment and is deterministic in nature. It is therefore predictable. An open system is just the opposite; it interacts with outside components in the environment and becomes complicated and hard to predict. Changes in the nature of one component can lead to changes in other components. The organization is embedded within a larger organization and is dependent on this larger organization for resources, information and feedback. Because of this relationship as an open system, a balance must be obtained among all the system components to achieve an effective system function.

4. The Systems Model Applied to Organizational Behavior

The open systems theory presented is a general framework for conceptualizing organizational behavior over time [Ref. 6]. Organizations can be better understood if they are considered as dynamic open social systems. However, the open systems model does not help a manager to diagnose problems in a specific situation. For this the manager requires a more concrete model. However the systems model does help with the diagnostics of the problem, in the sense that it provides a framework within which diagnosis can occur. It draws attention to those areas of the outputs and outcomes of the organization, which may indicate potential organizational pathologies. These specific pathologies may require a more specific model to diagnose. The basic Nadler and Tushman model is shown at Figure 1. The model describes a system of inputs that are transformed to produce outputs.

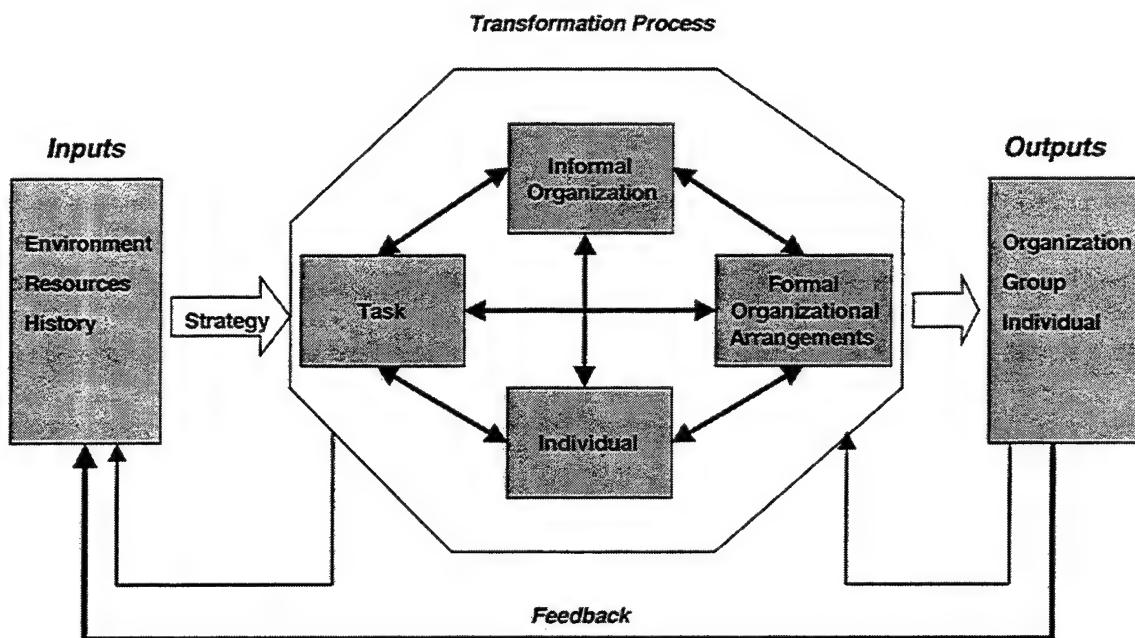


Figure 1. The Nadler and Tushman Model for Diagnosing Organizational Behavior
From [Ref. 6]

The model exhibits five basic systems characteristics [Ref. 6:pp. 93-94]. The first is internal dependence, where changes in one component will frequently have repercussions in other parts of the organization. The second is a capacity for feedback, in which information about the output can be used to control the system. The third characteristic is that of equilibrium, or a state of balance. When the system is out of balance it will react and move to bring itself back into balance. The fourth characteristic is that of equifinality. This characteristic means that different configurations can lead to the same conclusion, so there is no one best answer. The final characteristic of the model is that of adaptation. The system will adapt as the input environmental conditions change.

The premise of the Nadler and Tushman model is that problems or symptoms in the organization are caused by incongruencies in the organizational components, and

identifying these incongruencies can direct a manager where to focus resources to correct these problems. The model puts emphasis on the transformation process and the critical system property of interdependence.

The model focuses on the critical system characteristics of dependence. Organizations are made up of components or parts that interact with each other. These components exist in states of relative balance, consistency, or “fit” with each other. The different parts of the organization can fit well together and thus function effectively or fit poorly, leading to problems [Ref. 6].

a. Inputs

Inputs are the fixed or given factors which influence organizational behavior. They are the basic materials that the organization has to work with, but has little if any control over. Inputs provide both constraints and opportunities for managerial action. There are three major input factors defined in the Nadler and Tushman model.

- Environment. Environmental factors are those factors from outside the organization that may affect the organization. They include markets, clients and customers, suppliers, governmental regulating bodies, labor unions, competitors, financial institutions, and special interest groups.
- Resources. Resources are the various assets that are available to the organization. Major categories of resources include human resources, technology, capital (physical, liquid, property), raw materials, and information.
- History. The history of the organization is just that, the record of how the organization has responded to past events. There is growing evidence that an organization’s current policies and actions are greatly influenced by their past behaviors [Ref. 6:p. 95]

b. Strategy

The organizational strategy determines the work to be performed by the organization and defines the desired organizational outputs. It is defined by the

organization's core mission which includes the market it serves, and the products and services it provides. The strategy may be the single most important input for the organization as it defines the organizational objectives and outputs.

c. Organizational Components

The Nadler and Tushman model uses four major components to describe the basic organizational structure. The idea is to find useful approaches to simplify the complex phenomena and identify patterns in what at first seems to be a random set of activity [Ref. 6:p. 97].

(1) Task. The task is the basic work to be done by the organization, or the activity the organization is engaged in, as defined by the organizational strategy. The emphasis here is on specific work activities and functions and their inherent characteristics. Analysis of the tasks would include a description of basic work flows and functions, and the knowledge or skills demanded by the work. Also included in this description are the rewards and constraints inherent in the work, such as critical time demands and cost constraints [Ref. 6:pp. 98-99].

(2) Individual. The second component of the organization is the individuals who perform the tasks defined above. The idea here is to define the employee characteristics. The most critical items relate to their knowledge and skills requirements. Also important are the different needs, preferences and expectations of the employees, as well as demographic factors such as age and sex. Knowledge of each of these components will help to describe and define the expected behaviors of the individuals in the organization [Ref. 6:p. 99].

(3) Formal Organization Arrangements. The formal organizational arrangements include the range of structures, processes, methods and

procedures formally developed to get the individuals to perform tasks consistent with the organizational strategy [Ref. 6:p. 99]. There are two major factors associated with this definition. The first is the organizational design typified by the organizational chart that clearly shows the basic units or groups and their associated coordination and control relationships. The second factor is the way jobs are designed within the organization. This shows the relationship of the individual jobs within a given group. A third factor is the work environment, which includes a number of sub-factors that describe the immediate work environment. These include items such as the physical working environment and the availability of supporting resources and materials. A final factor is the organization's Human Resource Management (HRM) function, which is responsible for attracting, hiring, training, and developing human resources.

(4) Informal Organization. The final component is the informal organization. The informal organization is the set of implicit and unwritten arrangements that emerge over a period of time and influence the behavior of the organization. The behavior of leaders (as opposed to the formal creation of leaders in the formal organization) is an important feature of the informal organization. There are various communication and information patterns that create the informal organizational design.

d. Outputs

Outputs are what the organization produces, and are also defined by how the organization performs, and its effectiveness. At the organizational level three factors must be kept in mind when considering organizational performance: goal attainment, resource utilization, and adaptability [Ref. 6:p. 97]. Goal attainment is defined by how well the organization meets the stated objectives in its strategy. Resource utilization is

how effectively the organization makes use of its resources, not just in terms of goals but also in reaching the potential performance inherent of the available resources (burning them up as opposed to managing them wisely). Adaptability refers to the ability of the organization to respond to changing conditions in the environment by continuing to position itself favorably. Organizational outputs are influenced by the organizational inputs and any changes in the organizational components.

5. Concept of Congruence

Nadler and Tushman describe the concept of congruence in their model as the “relative degree of congruency, consistency, or ‘fit’ [that] exists between each pair of organizational inputs” [Ref. 6:p. 100]. Congruence is defined as “the degree to which the needs, demands, goals, objectives, and/or structures of one component are consistent with the needs, demands, goals, objectives, and/or structures of another component” [Ref. 6:p. 100]. Congruence therefore describes how well pairs of components fit together. The basic assumption of this model is that the organization is most effective when the components of the organization fit together well [Ref. 6:p. 101]. The congruence model provides a general organizing framework from which to analyze an organization.

6. Diagnostics

The diagnostic phase of the Nadler and Tushman model is predicated on the assumption that there must be a diagnosis of the organization under scrutiny before management can choose where and how to intervene [Ref. 6]. This phase is defined in four steps.

a. Identify the System

Before detailed analysis can be done on the organization a clear description of the system must be defined. The unit of analysis must be clearly specified, whether it is the team, branch, division, or the whole organization.

b. Determine Key Variables

Once the system is defined, the next step is to use the available data to determine the character of the organizational inputs and those of the four key organizational components. This analysis should not focus on an exhaustive description of each component, but on only those components that are relative to the particular situation being examined [Ref. 6].

c. Diagnose State of Fits

This is the most critical step in the diagnostic phase. It involves two related stages, diagnosing fits between components, and linking the “fits” to system outputs. Using experience, observations, and research knowledge the manager must evaluate the fit of each of the relevant relationships defined in Table 1 [Ref. 6:p. 100].

Fit	Issues
Individual/Organization	How are individual needs met by the organizational arrangements? Is there a convergence of individual and organizational goals?
Individual/Task	How are individual needs met by the tasks? Do individuals have the required skills and abilities to meet task demands?
Individual/Informal Organization	How are the individuals needs met by the formal organization? How does the informal organization make use of individual resources consistent with the informal goals?
Task/Organization	Are organizational arrangements adequate to meet the demands of the task? Do organizational arrangements motivate behavior that's consistent with task demands?

Task/Informal Organization	Does the informal organization structure facilitate task performance or not? Does it hinder or help meet the demands of the task?
Organization/Informal Organization	Are the goals, rewards, and structures of the informal organization consistent with those of the formal organization?

Table 1. Nadler and Tushman Model for Diagnosing Organizational Behavior - Definitions of Fits From [Ref. 6]

d. Identify Critical Problems

Based on the diagnosis of the fits listed above, the final step in the diagnostic phase is to relate this set of behaviors to the system outputs (i.e. goal achievement, resource utilization, and adaptation) [Ref. 6]. Given the effect on the outputs the manager must determine which system behaviors require attention and effort. The purpose of the Nadler and Tushman model is to allow managers to determine where to intervene and focus resources on critical items to correct the problematic behavior.

D. SUMMARY

There are many factors affecting the issue of retaining qualified personnel in the federal government. There are the basic theories of human behavior and motivation as discussed in theories by Hawthorne, Maslow, McGregor and Herzberg. These factors contribute to the overall sense of satisfaction or dissatisfaction of the current government employees. Another factor is the Government's recent policies of downsizing and the elimination of thousands of government positions over the last ten years. These policies have created instability in the current Government job structure as positions, which could have been filled as promotions within the Government, are eliminated as senior personnel retire. The Nadler and Tushman model is used to analyze these issues in terms of their effect on the PMCD organization. This model relies on the concept of the open system. An open system interacts with components outside the organization in the environment.

Because of this relationship as an open system a balance must be obtained among all the system components both within and outside the organization to achieve an effective system function. The Nadler and Tushman model will be used to aid in the determination of the primary thesis question: what organizational factors of the PMCD affect the recruitment and retention of personnel, and how can the PMCD address these factors to ensure adequate coverage during the waning years of the program?

III. METHODOLOGY AND DATA

A. INTRODUCTION

This chapter presents the methodology used and the data gathered to answer the primary and subsidiary thesis questions. From these sources the types of data that would be required to analyze the organizational framework were derived, and survey and interview questions were generated. All interviews were conducted in person.

B. SURVEY DATA

The survey data were collected in two different formats, and are described in the next three sections. The first format is the personnel database. This database is comprised of information gathered from several sources and compiled into a single record for each employee. The second format was a survey of the PMCD home office personnel. This survey was distributed to 85 people in the PMCD home office at Aberdeen Proving Ground, MD.

1. Personnel Database

The purpose of compiling a personnel database was to gather data on possible demographic factors that may affect the workforce motivation and general sense of satisfaction. A comparative analysis of these data will indicate the relative importance of these factors and their effect upon retention of qualified personnel. The factors selected for the database were general demographic indicators that can potentially affect the recruitment and retention of PMCD personnel. The selected factors include:

- Age – The age of the individual in years. The closer an individual's age is to fulfilling a retirement system option; the more likely he or she will leave government service.
- Service Time – The total amount of time the individual has credited in the federal government service toward a retirement system.

- Retirement System – There are two options for retirement system. The first system is the Civil Service Retirement System or CSRS, the old system phased out between 1983 and 1987. This system allows for retirement under several options which are summarized in Appendix A. The second option is the FERS system, which is a three-tiered program consisting of the Thrift Savings Plan (TSP), Social Security, and a FERS annuity. The FERS system is also described in Appendix A. The main difference between these two systems is that a CSRS employee must work with the government until they fulfill one of the options described in Appendix A. If they leave government service before such time, they receive a substantially reduced retirement annuity that is deferred until age 62. As a result they will lose much of the value of their CSRS benefits. A FERS employee has no such limitations. The FERS system design is more portable and allows the employee to take their annuity with them if they leave government service. As a result FERS employees can seek employment outside the government with fewer restrictions.
- Core/Matrix Designation – The PMCD utilizes long-term (2-10 years) matrix staffing from the U.S. Army Chemical and Biological Command to support their TDA structure. Matrix personnel are retained by their “home command” and theoretically return “home” upon completion of their assignment at the PMCD. As such there are both “core slots” which belong to the PM and exist as long as the PM exists, and “matrix slots” which return to their home command upon the dissolution of the PM. At the present time the PMCD has 246 civilians, 114 core and 132 matrix.
- Job Series – The job series is the occupational series designation as defined by the government personnel system.
- Grade Level – The federal government’s General Schedule pay system defines work difficulty, responsibility, and qualifications required for performance into a fifteen-grade system. This designation is the grade level defined for each position on the TDA under the federal merit system.
- Organizational Element – The organizational element is the Project, Product, Office or Team designation assigned within the PMCD organizational structure.
- Sex – Male or female gender distinction.

Utilizing the first three factors described above, age, service time, and retirement system, a retirement eligibility date may be computed for each employee in the PMCD organization. With this date predictions of the likelihood, and number of retirements by year for the PMCD can be calculated.

2. Home Office Personnel Survey

The home office survey was designed to analyze potential factors that may influence the retention of the PMCD workforce. The survey is shown in its entirety at

Appendix B. The survey was given to all PMCD home office personnel located at Aberdeen Proving Ground, MD, excluding supervisory positions. Management was excluded because motivational factors that may influence their group are significantly different than for the journeymen level. Also of the twenty managerial positions that were excluded from the survey, only four of the individuals currently in those positions will not be eligible for retirement by April 2007, and ten of the twenty are eligible to retire either now or within the next year. A total of 85 surveys were distributed. From that 78 were filled out and returned. The first section of the survey consists of ten questions focusing on potential retention factors and issues relevant to PMCD management. The PMCD's concerns are reflected in the following subsidiary thesis questions:

1. When can the PMCD expect to face retention difficulties given the current organizational demographics and programmatic mission schedule?
2. Which job classification series within the PMCD are more at risk for retention difficulties?
3. Which organizational elements are most affected by retirement?
4. Which incentive policies and programs for retention in the federal government that are currently available to the PM for Chemical Demilitarization will be most effective given the demographics of the individuals in the PMCD organization as defined in this analysis?

The first survey question addresses the issue of whether a person's retirement eligibility will have a direct correlation to his or her actual retirement. This will aid in the prediction of the percentage of people who will retire upon their first opportunity. This will aid in responding to the subsidiary thesis questions number 1 above. The second survey question deals with the issue of whether an individual believes that the mission will terminate in 2007. This indicates the employee's relative sense of imminence of the need to seek new employment. This will also aid in the determination of question one above. If employees don't believe the program will actually end in 2007, they may not

feel the need to find more stable future employment. Survey question three indicates the actual years of experience that each employee has in the PMCD organization. Survey question four is a confirmation of the training record to indicate what percent of the organization participated in any training within the last year. Survey question five is designed to indicate the PMCD employee's perception of the pay and benefits of the support contractors working for the government. Survey question six is another question designed to indicate the complacency factor of the workforce. Survey question seven is an indicator of the willingness of the current employees to move to another state for a promotion or lateral move outside of the PM. This question is used in conjunction with survey question ten to indicate the willingness and probability of the current workforce to accept current vacancies in field office positions. If a person indicates he or she will move to another State for a promotion, but will not accept a field office position, then one cannot assume that the field office positions are harder to fill solely because they entail a move to another State. Question eight is used for comparative purposes to determine if the "Matrix" or "Core" designation is a factor in how respondents answered the other questions. Question nine like question eight is used for comparative purposes to see if the "CSRS" or "FERS" designation is a factor in how they answered the other questions. Question ten is a direct indication of the ability of the PM to attract qualified internal personnel to field office jobs.

The second portion of the survey is an analysis based on Herzberg's "hygiene" and "motivator" factors discussed in section II.A of this thesis. These factors relate to an individual's relative sense of happiness and satisfaction with his or her present job. The "hygiene" factors include: quality of supervision, pay, company policies, physical

working conditions, and relations with others [Ref. 10: p. 80]. The “motivator” factors include: promotion opportunities, chance for personnel growth, recognition, responsibility and achievement [Ref. 10: p. 80]. In this section each individual was asked to rate each of the factors from one to ten with one being the lowest score defined as “highly dissatisfied” and ten being defined as “highly satisfied”. Five was the neutral score defined as “neither satisfied nor dissatisfied”. The factors that were rated and their definitions are listed below:

- Pay – Are you satisfied with the amount of basic compensation in dollars received on a per hour basis?
- Job Satisfaction – What is your overall sense of satisfaction in your present position?
- Job Stability – Do you feel that you can remain in your current position until you choose to leave?
- Flexibility (Scheduled Day Off (SDO), Flex Schedule, etc.) – How do you rate the ability of your job to offer a flexible schedule to accommodate your personnel desires?
- Amount of Travel – Do you feel the amount of time spent on travel is too much, too little, or acceptable?
- Recognition – Do you feel the organization appropriately recognizes personnel who deliver high quality work?
- Potential for Advancement – Do you think that the organizational structure and management allow for persons who demonstrate a high potential to advance?
- Training – Are you satisfied with the amount of training you have requested and received from this organization in your present job?
- Experience (relevance to future employment) – Do you feel the job experience you have received in your present position will help you advance in your career?
- Benefits – How do you rate the overall benefits package offered by the federal government in terms of life insurance, health insurance, and retirement system?
- Physical Working Conditions – How do you rate the physical working conditions of your area to include: the state of your building, furniture, supplies, access, and convenience?
- Supervisor Relationships – Are you satisfied with the working relationships you have had with your supervisors in this organization?

- CO2 Considerations (consideration of others) – How do you rate the “civility” of the people in the organization? Do they treat each other with respect?

3. Supporting Documentation

The items listed as supporting documentation are other data gathered from records, databases and reports. They are data on other factors under consideration to the thesis questions that were not gathered by means of an interview or survey.

a. Training Records

In support of this thesis the training records for the last year (FY2000) were requested. All prior year records were also requested, but a new historical database system was established in FY2000, and the records for the previous years were no longer available at the PM level. As a result data for all of FY2000 and the first quarter of FY2001 were obtained. These data consisted of the name of each person who received training, the title of the course attended, the dates over which the course was conducted, the length of the course in hours, and the site at which the course was held.

b. Turnover Data

Data concerning the turnover of personnel were compiled by comparing personnel rosters from 1996, 1999 and 2000, searching for matching names. The authorized PMCD strength for this time period varied between 275 and 293. The actual number of employees at PMCD during this timeframe varied between approximately 230 and 260 with a current staffing of 246 civilians. There are 66 names that appear on the September 1996 roster, that no longer appear on the November 2000 roster. So a minimum of 66 people have left the agency in the last four years. There could be more since, others could have come to the agency after 1996, and left before 2000. Approximately 14 of the 66 positions (21%) were vacated by retirements. There are 41

people on the February 1999 roster who do not appear on the November 2000 roster. This means that 41 of the 66 people left the organization in the last twenty-one months. Of the 41 who departed, approximately 5 (12%) were retirements. This is an average annual turnover rate of 9.5 percent over the last twenty-one months.

c. Vacancy Data

The current vacancy data were compiled from the PMCD Nov 2000 TDA [Ref. 3]. The vacancies are listed in total to reflect overall organizational problems, by job series to reflect skills and knowledge the individuals have, and by organizational element which reflects the skills and knowledge the job tasks require.

d. Future Staffing Requirements

The future staffing requirements for the PMCD are listed in the PMCD Manpower Requirements/Funding Levels for Outyears report [Ref. 5]. This report lists the manpower requirements requested by the PMCD for FY01 through FY11. The data is arranged by matrix and core personnel requirements as well as subordinate PMs and sub PM elements and offices for each fiscal year. The data is specific to each job position, listed by job series and grade. The report has data for both the numbers of authorized and funded positions.

C. SUMMARY

The data collected in this section will be used to determine the demographics of the PMCD organization and the basic preferences of the workforce. These findings will be used in subsequent analysis to determine the relevant factors affecting the retention and recruitment of PMCD employees, and to determine which recruitment and retention policies will be most effective for the PMCD.

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IV. CURRENT RECRUITMENT AND RETENTION POLICIES

A. INTRODUCTION

The following chapter presents the current policies that are available for consideration by government managers to encourage current employees to remain with the government and to hire new employees into Government service. The policies presented in this chapter are found in the "Acquisition Managers Recruiting, Hiring and Retention Handbook" [Ref. 11].

B. RECRUITMENT

In this chapter the term recruitment refers to the ability to attract potential employees to an organization. There are two major methods of recruiting discussed here, the basic hiring policies and the available incentives that a manager can use within the governmental system.

1. Hiring Policies

In addition to the normal process of recruiting through the merit system there are three other applicable policy exceptions that can be utilized to meet temporary personnel requirements caused by the dynamic and unpredictable nature of the PMCD program.

a. Temporary Promotions

Managers may fill a position temporarily by promoting a current employee to a higher graded position for up to 5 years. These temporary promotions can be used to meet temporary needs of the program. Temporary promotions allow employees the opportunity and the pay to perform at a higher grade level for the specified period. The selected employee must meet qualification standards and time-in-grade restrictions for promotion to a higher grade level.

b. Intergovernmental Personnel Act (IPA) Assignments

IPA assignments are agreements that allow for the noncompetitive temporary assignment of personnel between the federal government and state and local governments, colleges and universities, Indian tribal governments, federally funded research and development centers, and other eligible organizations. Such assignments cannot be made between federal agencies. These assignments are meant to provide technical assistance or expertise where needed, to work on tasks that are of mutual benefit and concern to both agencies. IPA assignments can be made for up to 2 years, and may be extended for up to 2 more years. They are written agreements between agencies, outlining the responsibilities and obligations expected of each of the two parties. The costs are negotiated between the participating organizations, with consideration being given to the relative benefits each organization will receive from the assignment. The larger share of the cost is absorbed by the organization that benefits the most.

c. Consultant and Expert Employment

Under this policy managers have the authority to employ experts or consultants to meet temporary requirements (up to 1 year). Experts or consultants can be employed intermittently—not on a regular work schedule—either for a specific period or without a time limit. They can also be employed under a temporary appointment for 1 year that can be extended for another year. There are several restrictions on the use of these appointments. Experts or consultants cannot perform managerial or supervisory work, although an expert may act as a team leader or director on a specific project for which he or she was hired. In addition, they cannot fill in during staff shortages or do work performed by the agency's regular employees.

2. Hiring Incentives

a. Tuition Assistance

Research suggests that the opportunity for training is a critical factor in the new generation's decision to work for an organization [Ref. 11:p. 35]. One way to show a commitment to training is to grant tuition assistance to students hired under the Student Career Experience Program (SCEP). This program was formerly the Co-operative Education Program. The program provides formal periods of work and study to students throughout the year while students are attending school. Managers can reimburse student's expenses for tuition, books, etc, in exchange for a period of obligated Government service.

b. Travel and Transportation Expenses for Interviews and New Appointments

A manager may pay the travel and transportation expenses of an individual candidate for a pre-employment interview. The manager can also pay for travel and transportation expenses for a new appointee to the first post of duty.

c. Dual-Compensation Waiver

In most cases, when the Federal Government rehires a civilian retiree, it reduces the retiree's annuity. This waiver provision allows the rehired retiree to collect both full retirement pay and a full paycheck. Exceptions are usually requested to meet temporary emergency hiring needs or when exceptional difficulty in recruiting or retaining a qualified candidate for a particular position has been encountered. This waiver is used in only in special or extenuating circumstances. Usually the applicant has to be

the only qualified candidate for the job, and the action is approved on a case-by-case basis.

d. Recruitment Bonuses

To attract superior candidates, managers have the option to pay a lump-sum recruitment bonus of up to 25% of the annual rate of basic pay (excluding locality pay) to an employee who is newly appointed to a difficult-to-fill position. In return for the bonus, the employee must sign an agreement to complete a minimum of 6 months of employment with the agency. In justifying these exceptions the manager must consider the success of recent efforts to recruit candidates for similar positions, and recent turnover rates for similar positions.

e. Superior Qualifications Appointments

Normally, when new hires are appointed they are placed at the first step of the grade, unless their pay is based on highest previous rate. However, under this policy an employee can be paid at a higher step within the grade on the basis of his or her "superior qualifications" for the position or because of special needs of the agency.

f. Student Loan Repayment

The Secretary of Defense may repay all or part of a student loan for a DoD employee including those appointed to an acquisition position. Repayments are subject to a limit of \$6,000 per year and a life time limit of \$40,000.

C. RETENTION

The term retention in this thesis refers to the retaining of the current employees in the PMCD organization. There are a number of ways to encourage valuable employees to remain. They range from monetary awards, training, and education to creating flexible

hours, work schedules, and part-time jobs. For special situations, there are policies that allow pay flexibilities such as a retention and relocation allowances and a demonstration project designation that allows authority from OPM to waive existing law and regulations.

1. Recognition

a. Cash Awards

Managers are authorized to grant a cash award to an employee, individually or as a member of a group, up to \$10,000 without external approval, up to \$25,000 with OPM approval, and over \$25,000 with Presidential approval. Managers are authorized to request a lump-sum cash award to an employee based on a "Fully Successful" or better rating of record, or to recognize accomplishments that contribute to the efficiency, economy, or other improvements of government operations.

b. Time-Off Awards

Managers may authorize time off from duty without charge to an employee's leave or the loss of pay, as an award.

c. Career Ladders

Agencies have the authority to establish career ladders that allow for a noncompetitive promotion for employees, based on their performance and the acquisition of appropriate knowledge and skills. Managers can use upward mobility career development programs to hire at lower levels, and train their own employees with noncompetitive promotions up to the journey level.

d. Quality Step Increase

Managers may grant an accelerated increase in an employee's pay by giving an employee a quality step increase. A quality step increase is an additional step increase that a manager may grant to employees if they have received the highest rating of record available under the applicable performance appraisal program.

2. Training Employees

a. Job-Related Training

Managers may provide employees with any training or education that improves their performance or the performance of the organization and is deemed applicable to the achievement of the agency's mission and performance goals. This training is not limited and can be obtained from the source that best meets the employees' needs, with no distinction made between government and non-government sources.

b. Reimburse Training and Education Costs

Managers may authorize the sharing of the costs of training and education with employees, and may reimburse employees for all or part of the costs of successfully completed training. This reimbursement may include the cost of books and/or course materials.

c. Pay for Academic Degree

Managers are empowered to use a variety of methods to improve performance and productivity, including the use of academic institutions. Managers can allow any training that is mission-related. In addition, they can authorize and pay for training leading to an academic degree when necessary to help recruit or retain employees in shortage occupations, especially those with critical skills. This program is

an exception to a continuing statutory prohibition against training civilians for the sole purpose of obtaining a degree.

d. Rotational Assignments

The Defense Acquisition Workforce Improvement Act (DAWIA) and DoD policy encourage acquisition workforce development through experimental assignments in multiple functions and organizations. DoD services and agencies must review acquisition workforce personnel with over 5 years in a single critical acquisition position and decide, in each case, whether the interests of the individual concerned and the government would be best served by assignment to another position. These rotation reviews may consider a wide variety of alternative assignments for the individuals affected, including reassignments, details, Experience With Industry, Intergovernment Personnel Act assignments, transfers, exchanges, and sabbaticals.

3. Special Policies

a. Retention Allowances

Agencies can use a retention allowance to retain an employee when a special need for the employee's services exists or when the employee's unusually high or unique qualifications make retention essential, and if the employee would be likely to leave the federal service without the allowance. This authority allows for payments of up to 25% of basic pay to individual employees and up to 10% of basic pay to a group or category of employees. The increased payments may be continued as long as the conditions giving rise to the original determination to pay the allowance still exist.

b. *Relocation Bonuses*

A relocation bonus is authorized as an effective recruitment tool for encouraging the relocation of employees, in order to execute hard-to-fill positions. It can also be used as a tool to encourage mobility within an agency. Managers can award a lump-sum relocation bonus of up to 25 percent of the annual rate of basic pay to an employee who must relocate to accept a difficult-to-fill position in a different commuting area. In return for the bonus, the employee must sign a written agreement to complete a minimum of 6 months of employment with the agency in that position.

c. *Flexible Working Conditions*

Managers may make appointments with varying work schedules to aid in the retention of personnel. These options include part-time (which may include job-sharing arrangements), intermittent, and seasonal work. The use of part-time employees can increase productivity, reduce overtime, and help managers recruit and retain valuable employees who would not otherwise be available for employment. Managers can restructure one full-time position into two part-time positions and accomplish the work of the former full-time position through job sharing. Agencies can create flexible working conditions such as variable work schedules (e.g., four 10-hour days, or Scheduled Days Off (SDO) a nine hour work day with an SDO every two weeks). These incentives may attract applicants or retain valuable employees who prefer or require flexibility.

4. The DoD Civilian Acquisition Workforce Personnel Demonstration Project (ACQDEMO)

The purpose of the personnel demonstration project is to enhance the quality, professionalism, and management of the DoD acquisition workforce by allowing improvements in the efficiency and effectiveness of the human resources management

system. Some key features of the program include: streamlined hiring, "broadbanding", a simplified classification system, and a Contribution-Based Compensation and Appraisal System (CCAS). The term "broadbanding" refers to the process of combining numerous occupational series into three career paths and grouping several general schedule grade levels into pay bands with no steps. This allows managers the flexibility to pay workers based on their work and not their grade level. The broadband classification and pay system replaces the current GS structure. In addition, the project designation offers delegated examining authority and modified term appointments providing organizations greater control over the hiring process.

D. SUMMARY

This chapter has presented policies and programs that can be implemented by Government managers to mitigate problems of recruitment and retention. Not all of these policies are applicable to the PMCD. Those that are applicable will have varying degrees of success. The applicability of each policy to the PMCD organization will be discussed in chapter VI of this thesis. In order to determine which policies will be most effective for the PMCD a discussion and analysis of the organization utilizing the Nadler and Tushman Model for Diagnosing Organizational Behavior [Ref. 6] follows.

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V. PMCD ORGANIZATIONAL DATA ARRANGED BY THE NADLER AND TUSHMAN MODEL FOR DIAGNOSING ORGANIZATIONAL BEHAVIOR

A. INTRODUCTION

The data presented in the following sections have been organized into the elements found in the Nadler and Tushman Model for Diagnosing Organizational Behavior framework [Ref. 6] in order to analyze how the various elements of the whole organization affect the retention process in the PMCD.

B. INPUTS

The organizational inputs are described in the Nadler and Tushman model as “the factors at a given point in time that affect the organization. They are the starting materials that the organization has to work with” [Ref. 6:p 95]. To utilize this method the inputs have been segregated into several categories (environment, resources, and history) to facilitate analysis of their effect on the PMCD organization in general and the retention of PMCD personnel in particular. Discussions of these factors are presented in the following sections.

1. Environment

Environmental factors are defined as those factors outside the organization that may have a potential impact on the organization. Environmental factors may include individuals, groups, other organizations and even larger social forces. The environment includes markets (customers) suppliers, governmental and regulatory bodies, labor unions, competitors, financial institutions, and special interest groups [Ref 6:p 95]. The environment of most organizations is very complex, and particularly so for the PMCD. All of the major elements defined under the environmental factors are defined by the relationships of the various stakeholders who participate in the PMCD mission. Each of

these stakeholders defines a set of demands and constraints. A group of stakeholders also combine to form public laws through federal, state, and local and environmental regulations, and congressional authorizations and appropriations. These public laws both define and limit the PMCD mission and requirements and have a great influence on the PMCD organization, its mission, and its ability to retain qualified personnel.

The PMCD external environment can best be described as dealing with competing coalitions, with stakeholder conflicts, in a highly regulated atmosphere. Stakeholder organizations can have direct oversight responsibility, can influence the PMCD organization politically, or are affected by the PMCD mission directly as customers or service providers. The stakeholders do not necessarily have common interests or goals, and are frequently at odds with the PMCD and each other. Many of the stakeholder organizations compete for the limited funding available to the program. Figure 2 shows the major stakeholder organizations affecting the PMCD. The stakeholders listed in this table were derived from information in the PMCD Acquisition Strategy [Ref. 12], the PMCD management Plan [Ref. 4], and discussions with members of the PMCD Public Outreach and Information Office.

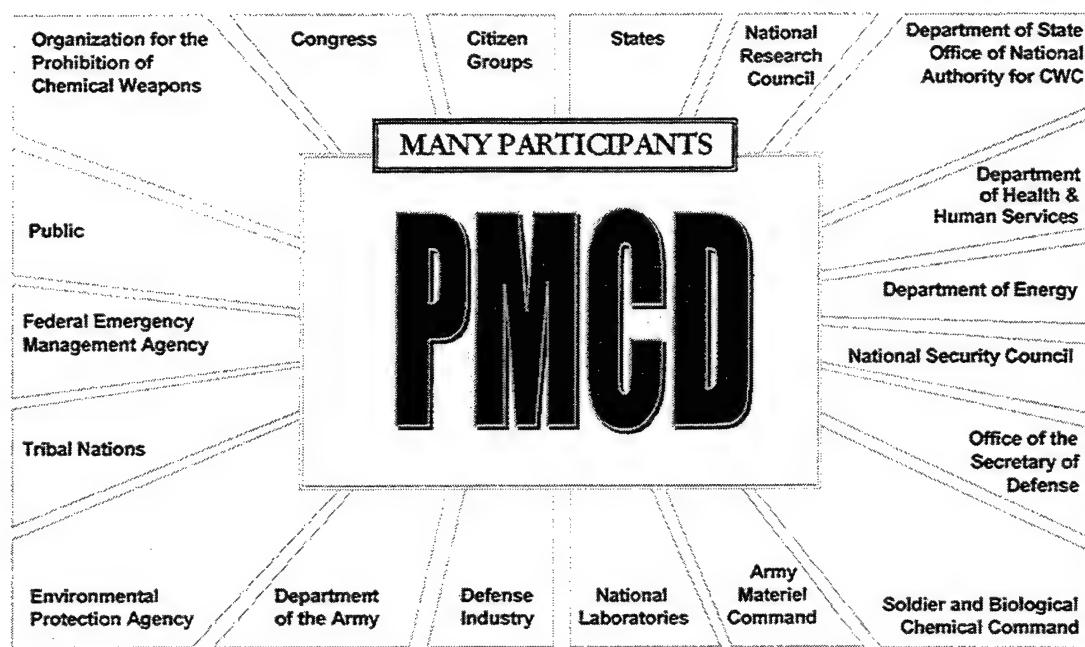


Figure 2. Major PMCD Stakeholders [Source: Researcher]

Congress is the most important stakeholder and established the PMCD by legislation in 1985. Congress provides funding and direction through subsequent appropriation and authorization legislation.

The Public is an integral participant in the program's decision process. A major criterion for program success is a safe and satisfied public. The general public, living in proximity to the unitary stockpile or suspect Chemical Warfare Materiel (CWM) sites, will provide the greatest scrutiny of the Army's proposed actions. The PMCD actively pursues coordination with all segments of the public to identify concerns and issues.

Where granted by the United States Environmental Protection Agency (USEPA), State environmental agencies have regulatory authority for laws concerning the Resource Conservation and Recovery Act (RCRA), the Clean Air Act (CAA), and the Clean Water Act (CWA). In addition, areas that USEPA does not address under

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) can be addressed under state CERCLA programs. Other state agencies, such as health departments and emergency management departments, may be interested in any chemical demilitarization activity that takes place in their state. Close coordination with all state agencies is required for all PMCD activities [Ref. 4:p. 49].

The National Research Council (NRC) of the National Academy of Sciences has an oversight committee that independently reviews PMCD efforts and provides technical advice and guidance to the Army on all aspects of the program [Ref. 12:p. 49].

The U.S. Environmental Protection Agency (USEPA) has oversight responsibility for all RCRA, CAA, and CWA permits required by the PMCD. The USEPA has delegated RCRA authority at all eight Continental United States (CONUS) sites to the responsible USEPA Region. RCRA oversight authority for Johnston Atoll Chemical Agent Destruction System (JACADS) is with USEPA Region 9. The Toxic Substances Control Act (TSCA) affects unitary stockpile sites that have M55 rockets, which contain low levels of toxic materials in their packing tubes, and is regulated directly by USEPA headquarters. The CERCLA affects the non-stockpile sites and is regulated by USEPA headquarters and its regions. Close coordination with USEPA and its regions is required for both the stockpile and non-stockpile programs under the PMCD [Ref. 4:pp. 49-51].

The Department of Health and Human Services (DHHS) must review all plans for excavation, destruction, and transportation of chemical agents and munitions. The National Center for Environmental Health, a component of the Centers for Disease Control and Prevention of the DHHS, provides support and guidance for chemical

weapons programs. In addition, the Center for Environmental Health establishes the standards that govern the levels to which the agents must be destroyed and determines the monitoring and health standards that must be used for public protection. DHHS must also approve plans produced by the Product Manager for Non-Stockpile Chemical Materiel (PMNSCM) to destroy or transport CWM for each non-stockpile site remediation, prior to execution [Ref. 4:p. 51].

The **U.S. Army Materiel Command (AMC)** has experts in chemical weapon characteristics, operations, safety, storage, maintenance, and transportation. PMCD obtains the required expertise from AMC as required through the use of matrix personnel. The policy describing the use of matrix personnel to support PM operations is described in Army Regulation 70-1 [Ref. 13: Section II.4-5]. Although PMCD does not rely on AMC for oversight, the PMCD must work in conjunction with the individual installation/depot commanders, all of who are under the command of AMC. The installation/depot commander, is the land owner, and is inherently responsible for ensuring coordinated security, emergency response, chemical/explosive safety, environmental compliance, chemical surety, and other activities necessary for the continued safe storage and ultimate destruction of the lethal chemical agents. The installation commanders have total responsibility for remediation of their facilities. These responsibilities include obtaining funding from the Defense Environmental Restoration Account, restoration planning, preliminary assessment/site investigation, remedial investigations and feasibility studies, and obtaining environmental permits to accomplish their respective efforts. This means that the installation commanders are the

permit holder of record for any PMCD chemical demilitarization activities on their site [Ref. 4:p. 54].

Soldier and Biological Chemical Command (SBCCOM) is a subordinate command under AMC and is the entity which provides matrix personnel to support PMCD and its subordinate PMs. SBCCOM also provides some procurement and administrative contracting support. In addition, SBCCOM commands the chemical storage activities where much of the nations chemical materiel is stored. SBCCOM also has two subordinate departments that support PMCD missions on a reimbursable basis, the U.S. Army Technical Escort Unit (TEU), and the Edgewood Chemical and Biological Center (ECBC). TEU undertakes emergency actions in support of the NSCM missions that are by their nature are unpredictable and require expertise not generally available in the civilian sector. ECBC developed the nation's chemical weapons, and retains the expertise to develop, store, and treat CWM. It supports specialized requirements related to chemical issues, and conducts studies and research [Ref. 4:p. 55].

The **Defense Industries** support the efforts of the PMCD through contracts to design, build, test, and operate both facilities and equipment to destroy chemical agents and materiel. The various industries also compete with each other to field developing chemical weapons destruction technologies into the PMCD mission. These various industries through specific contractor entities provide the major source of competition for the personnel expertise required by the PMCD.

2. Resources

The resources are the various assets the organization has to work with. They include employees, technology, and capital. In addition, the organizational climate,

whether positive or negative, is also a significant although less tangible organizational resource discussed in the Nadler and Tushman model [Ref. 6:p. 95]. The specific questions to be addressed here are, which resource elements affect the retention of PMCD employees, what is the relative quality of those resources, and to what extent are these resources fixed or flexible?

a. Employees

In the PMCD organization there are 304 required positions of which 293 have been formally authorized on the FY2000 TDA. This number is relatively fixed, requiring waivers for high-grade caps and approvals at the Army Acquisition Executive (AAE) for deviation. Due to the downsizing issues discussed earlier in this thesis, any new hire, whether hiring due to attrition as a replacement or for a new authorized position, must be obtained through the use of matrix personnel from SBCOM, for a matrix designated TDA position, or from other government agencies for a core designated position. This prevents the PMCD from contributing to an increase in overall government strength, but also limits the numbers and types of people from which the PM can select.

b. Technologies

There have been several technologies that have been proposed, by various members of the PMCD stakeholder list, for use in the destruction of chemical weapons and chemical materiel. The following chronology of the PMCD technology development is derived from several sources to include the PMCD Acquisition Strategy [Ref. 12], the PMCD Management Plan [Ref. 4], and a GAO report [Ref. 14: Appendix IV].

The Army tested and developed an incineration process and disposed of several thousand tons of mustard agent stored in ton containers at Rocky Mountain Arsenal from 1971 to 1973. From 1973 to 1976 the Army disposed of nearly 4,200 tons of nerve agent by chemical neutralization at Tooele Army Depot and Rocky Mountain Arsenal. The process proved to be problematic and not very reproducible, making automation difficult. In 1982, an Arthur D. Little Corporation study for the Army concluded that using incineration, rather than neutralization, to dispose of the stockpile would reduce costs. In 1984 a review by the National Research Council (NRC) endorsed the Army's disassembly and high-temperature incineration process for disposing of chemical agents and munitions. It also recommended that the Army continue to store most of the chemical stockpile, dispose of the M55 rockets, and analyze alternative methods for disposing of the remaining chemical stockpile. In 1992 The National Defense Authorization Act for Fiscal Year 1993 (P.L. 102-484) required the Army to report on disposal alternatives to the approved incineration method. As a result the PMCD began the formation of the Project Manager for Alternative Technologies Assessment (PMATA), (which became effective by 1994) to investigate alternative methods to incineration at two chemical weapons storage sites, which stored only bulk agent (no munitions or energetics). In 1994 The National Research Council again examined the PMCD program and issued its recommendations for the disposal of chemical agents and munitions to the Army. Again, the NRC endorsed the Army's disassembly and high-temperature incineration process for disposing of chemical agents and munitions over all other proposed technologies. The 1997 DoD Appropriations Act (P.L. 104-208) provided the Army \$40 million to conduct a pilot program to identify and

demonstrate two or more alternatives to the baseline incineration process for the disposal of assembled chemical munitions. As a result a separate Program Manager for Assembled Chemical Weapons Assessment (PMACWA), reporting at the DoD level, was established to investigate alternatives to the baseline incineration process that could safely dispose of both chemical agents, and munitions and energetics. This act also prohibited the PMCD from obligating any funds for constructing disposal facilities at two sites slated for PMACWA technology insertion, pending development of the new technology and assessment against the existing incineration technology. From this description the technologies under consideration by the PMCD can be described as dynamic, and with a quality level that continues to be debated by various Chemical Demilitarization Program stakeholders.

c. Capital

The capital resources related to the PMCD are those of the funding. In this regard the PMCD competes for funding like any other PM office with the exception that the PMCD is a separately reporting PM to the Army Acquisition Executive (AAE), and receives funding through a direct appropriation (Chemical Agent Munitions Destruction –Army, (CAMD-A)) account. This effectively “fences” the funding for the PMCD mission and affects the PMCD both positively and negatively. On the positive side the PMCD does not have to compete directly for scarce funding with other DoD and Department of the Army (DA) programs. On the negative side the PMCD cannot receive additional funding from any other programs and must maintain a zero sum balance within its own subordinate PMs. This means that the problems of any one of the four subordinate PMs under PMCD can become the problem of any, or all, of the other subordinate PMs.

d. Organizational Climate

The organizational climate of the PMCD is a significant although less tangible organizational resource. Because it is a non-tangible and therefore subjective resource it is hard to develop quantitative data to measure it. One potential measure of this factor would be the organizational vacancy rate. The numbers of vacancies in an organization is an indication of the ability of the organization to obtain new hires and the willingness of the current workforce to remain with the organization. If the organizational climate is poor people will "vote with their feet" and seek employment elsewhere. The PMCD organization vacancy rate will be discussed later in chapter VI, but it should be noted here that the current vacancy rate for the PMCD organization is 16% as of the 7 November 2000 TDA.

3. History

There are several factors concerning the history of the PMCD that have a potential effect on its ability to retain qualified personnel. This section will give a short description of the basic PMCD history and then discuss four major events that have influenced the PMCD ability to retain qualified personnel. The following history is summarized from the PMCD Acquisition Strategy [Ref. 12] and the PMCD Management Plan [Ref. 4].

The U. S. Army Materiel Command (AMC) Program Manager (PM) for Demilitarization of Chemical Materiel was established by AMC Charter on 11 October 1972. The PM was assigned to the U.S. Army Munitions Command at Dover, NJ. The original mission was to provide intensive centralized management for the timely and effective accomplishment of the chemical/biological demilitarization program, exercising

executive authority over the planning, direction and control of the chemical/biological demilitarization program.

Late in 1973, the PM's Office was relocated to the Edgewood Area of APG, with no change in mission. A DoD memorandum expanded the program, on 16 October 1973, with authority provided to initiate planning for the disposal of the remaining chemical agents and munitions stored at Rocky Mountain Arsenal, CO.

The program was expanded again in March 1975, when the Assistant Secretary of the Army (ASA) (Installation and Logistics) directed that the Army Installation Restoration mission be assigned to the program. On 22 August 1975, the charter redesignated the program as the Department of the Army (DA) Project Manager for Chemical Demilitarization and Installation Restoration. On 16 September 1975, the program was reassigned to back to AMC. In July 1976, the Department of the Army was designated as the lead service for the compilation and evaluation of applicable technology, and for the development of new or improved technology, criteria, and standards for the Installation Restoration Program, as related to chemical, biological, radiological, and associated contaminants. This DoD mission (along with the responsibility for demilitarization of incapacitating agents/munitions) was assigned to the organization in August 1976. In December 1978, the PM was designated as the U.S. Army Toxic and Hazardous Materials Agency to reflect the change in mission.

In November 1985, Public Law 99-145 required the establishment of a separate management organization, headed by a General Officer, to manage the Chemical Demilitarization Program. This same law specified a program completion date for destruction of the unitary chemical stockpile of September 30, 1994. Effective 1 May

1986 the Office of the Program Manager for Chemical Munitions (Demilitarization and Binary) (Provisional) was established. The organizational structure consisted of two project officers -- The Project Manager for Chemical Demilitarization, and the Project Manager for Binary Munitions. The Installation Restoration Program did not remain with the Chemical Demilitarization Organization it stayed with the U.S. Army Toxic and Hazardous Materials Agency. Also, a separate Program Manager for Rocky Mountain Arsenal was established to initiate planning for the disposal of the remaining chemical agents and munitions stored at Rocky Mountain Arsenal, CO. In early 1988 the Project Manager for Binary Munitions was split out of the PMCD organization and became a separate Program Manager reporting directly to the Chemical/Nuclear Program Executive Officer. The PMCD was then redesignated as the Program Executive Officer-PMCD (PEO-PMCD) reporting directly to the Under Secretary of the Army.

On 4 August 1988, the Assistant Secretary of the Army (ASA) issued a Decision Memorandum directing the restructure from the PEO-PMCD to Program Manager for Chemical Munitions as a separate reporting activity reporting to the ASA (Installations and Logistics). The mission was to provide centralized intensive management of the life cycle of the demilitarization and disposal of the U.S. stockpile of lethal and incapacitating chemical warfare agents and munitions, providing support to national efforts to obtain a verifiable chemical disarmament. On September 29, 1988, Public Law 100-456, Defense Authorization Act for FY89, extended the overall completion date of the program from September 30, 1994 to April 30, 1997. Again, on December 5, 1991, Public Law 102-190, Defense Authorization Act for FY92, extended the completion date of the program from April 30, 1997 to July 31, 1999.

The House Appropriations Bill (102-95), accompanying the 1992 Defense Appropriations Bill, established a new Project Manager for Non-Stockpile Chemical Materiel. On 11 September 1992, AMC Permanent Order 88-4, discontinued U.S. Army Chemical Materiel and Destruction Agency (USACMDA) (Provisional) and PMCD, and established USACMDA. USACMDA reported directly to the ASA (Installation, Logistics and Equipment) and AMC provided administrative support. On 10 February 1995, AMC Permanent Order 41-1 redesignated USACMDA as the U.S. Army Chemical Demilitarization and Remediation Activity under SBCCOM.

On October 23, 1992, Public Law 102-484, Defense Authorization Act for FY93, again extended the completion date of the destruction of the unitary chemical stockpile materiel from July 31, 1999 to December 31, 2004.

On 26 December 1994, the Under Secretary of Defense (Acquisition and Technology) designated the Chemical Demilitarization Program as an ACAT 1 Defense Acquisition Board Program. On 30 December 1994, the Office of the General Counsel directed the transition of management responsibilities to the AAE. On 28 March 1995, AAE established the Program Manager for Chemical Demilitarization as a direct reporting PM to the AAE. At that time, a core (PMCD) and matrix (SBCCOM) relationship was established.

On April 24, 1997 Senate Resolution 75, To Advise and Consent to the Ratification of the Chemical Weapons Convention, ratified the terms of the CWC, the international treaty prohibiting the development, production, stockpiling and use of chemical weapons and requiring their destruction. The CWC also extends the deadline for the destruction of the chemical weapons stockpile (which now includes non-stockpile

materiel as defined in the CWC treaty) from December 31, 2004, to April 29, 2007. This resolution also directs the President to explore alternative technologies for the destruction of the chemical weapons stockpile to ensure that the U.S. uses the safest, most effective and environmentally sound technology available to meet the obligations of the CWC. Also in this resolution is a provision to consult with Congress on whether to request an extension of the CWC deadline if the President determines that the use of a safer, more environmentally sound alternative technology to incineration would prohibit the U.S. from meeting the deadlines of the CWC.

There are four major events that are of particular interest to this thesis in the PMCD history. The first is the transfer of the PMCD (or its predecessor organization), to the Edgewood area of Aberdeen Proving Ground (APG) MD in 1973. The selection of this location allows the PMCD to utilize the chemical community resources of SBCCOM, which is also located at APG. SBCCOM is the supplier of matrix personnel in support of the PMCD. This relationship is critical to the retention of matrix personnel within the PMCD. If the PMCD were located a significant distance from the matrix support organization it would affect the PMCD ability to attract matrix personnel to the PM office.

The next significant event was the establishment of PMCD as an ACAT-1-D program in 1994. The designation of the PMCD as a major defense program created additional reporting and management requirements on the organization, but supplied no additional personnel. As a result the people needed to support these jobs were taken from the existing staff of the PMCD, creating a strain on the remaining PMCD staff, particularly in the subordinate PMs. In addition, many of the existing personnel were

placed in positions designated as acquisition critical positions. These personnel were required to become level III certified in their specified acquisition career field within a limited timeframe to remain in these positions. Although many of the PMCD personnel were "grandfathered" into the Army Acquisition Corps, the need for real training was still apparent, and many people were sent away for extended training, creating a further strain on the remaining staff.

A third problem that developed over the history of the PMCD organization was the establishment of the program end dates. On November 1985, Public Law 99-145 specified a program completion date for destruction of the unitary chemical stockpile of September 30, 1994. On September 29, 1988, Public Law 100-456, Defense Authorization Act for FY89, extended the overall completion date of the program from September 30, 1994 to April 30, 1997. On December 5, 1991, Public Law 102-190, Defense Authorization Act for FY92, extended the completion date of the program from April 30, 1997 to July 31, 1999. On October 23, 1992, Public Law 102-484, Defense Authorization Act for FY93, again extended the completion date of the destruction of the unitary chemical stockpile materiel from July 31, 1999 to December 31, 2004. Finally, on April 24, 1997 the Senate ratified the terms of the CWC, requiring the destruction of the chemical weapons stockpile (which now included non-stockpile materiel as defined in the CWC treaty) by December 31, 2004, to April 29, 2007. These events are summarized below in Table 2.

Date of Authorization	Specified Program Completion Date	Program Length in Years
November 8, 1985	September 30, 1994	8.9 Years
September 29, 1988	April 30, 1997	8.6 Years
December 5, 1991	July 31, 1999	7.7 Years
October 23, 1992	December 31, 2004	12.2 Years
April 24, 1997	April 29, 2007	10.0 Years

Table 2. Program Length as Determined by Authorization Language [Source: Researcher]

These events have limited the PMCD ability to perform adequate strategic planning. The Chemical Demilitarization program has always had a limited moving end date that has precluded the PMCD from creating a coherent plan for determining and retaining future staffing requirements.

The fourth and final significant event in the history of the PMCD was the ratification of the CWC treaty on April 24, 1997. The CWC treaty had many additional mission requirements that affected the schedules and therefore staffing requirements of the PMCD. The CWC has specified in its language several intermediate milestones for the destruction of various types and quantities of chemical warfare materiel. In order to meet these new milestones the PMCD was required to rearrange and add elements to the overall program schedule. In addition the treaty document is not a static document and new terms and requirements, which are open to interpretation by the administrating body the Organization for the Prohibition of Chemical Weapons (OPCW), have emerged and will continue to emerge. One provision in the treaty allows for the extension of the ten-year destruction schedule by an additional five years. If the United States were to request a five year extension the problems associated with the retention of qualified personnel

could be abated to a degree, if the current personnel were privy to the information early enough to make career decisions. However, if this extension is not publicized early enough to prevent the loss of key personnel, it will exacerbate the problem by extending the requirement for positions that are already vacant.

C. STRATEGY

The organizational strategy, as defined in the Nadler and Tushman model [Ref. 6:p. 97], determines the work to be performed by the organization and defines the desired organizational outputs. The basic mission of the PMCD is to safely and effectively dispose of all U.S. chemical warfare materiel while ensuring maximum protection of the public, the workers and the environment. A supplemental requirement is to be able to accomplish this mission within the confines of the CWC treaty schedule and milestones. Prior to the ratification of the CWC treaty the PMCD was required to perform the mission within the parameters of other program end dates as specified by Congress in various legislation. The PMCD strategy to meet these requirements has been to balance safety and environmental compliance with the limitations of the available and publicly acceptable technologies with schedule constraints of the Congressional legislation and CWC treaty stipulations. This balance of the safety, environmental, and available and acceptable technologies is sought through the use of public outreach programs that seek to determine the desires of the various communities, which are affected by the presence of chemical materiel.

To perform this task the PMCD relies on numerous contractors to perform the bulk of the actual design, construction, test and evaluation, and operation of the various chemical materiel demilitarization plants and equipment. The primary mission of the

PMCD workforce is to plan, award, and administer these contracts and monitor the contractor's performance for compliance.

Inherent in this strategy is the disestablishment of the PMCD organization. PM offices are structured to be transient. The missions assigned to PM offices are generally to be performed over a relatively short period, until they deliver the intended product. After product delivery the PM office is significantly reduced and relegated to a support role, if not disbanded outright. This is true for the PMCD, where other than the Non-Stockpile Chemical Materiel Product (NSCMP), which has a tentative transition agreement with SBCCOM, the mission requirements will cease to exist after 2011. This creates an end date for all those employed by the PMCD to transition to a new employer either within or outside of the government.

E. ORGANIZATIONAL COMPONENTS

1. Task

The task is the basic work to be done by the organization, or the activity the organization is engaged in, as defined by the organizational strategy with emphasis on specific work activities and functions [Ref. 6:p. 98]. The tasks of the PMCD are formalized through each level of oversight. At the government level, the public laws and the PMCD organizational strategy, discussed previously, define many of the tasks. The organizational level uses the public laws to develop and staff PMCD Regulation 10-1: Mission and Major Functions Statement [Ref. 15]. Supervisors and individuals use the 10-1 statement to develop detailed task narratives into individual job descriptions. Many of the tasks, particularly those relating to the technical aspects of chemical weapons, agents, and associated materiel, are unique to the PMCD organization or the government.

The commercial industrial base supports these tasks only through specific government contracts. The commercial industrial base does not support technologies specifically related to chemical agents. The tasks of the PMCD have been divided into traditional functions and derived in part on the organizational elements listed in the PMCD Mission and Major Functions Statement [Ref. 15].

a. Skills and Knowledge Demands of the Work

Job series and grade information from the personnel database is shown in Table 3 and Table 4. Table 3 is the breakout of the grade structure of the authorized positions in PMCD. Table 4 is the number of positions by job series that are authorized for the PMCD. Both the job series and the grade requirements give an indication of the skills and knowledge requirements expected for each task.

Pay System	Grade Level	Number of Positions
General Schedule	4	3
General Schedule	5	1
General Schedule	6	10
General Schedule	7	21
General Schedule	8	4
General Schedule	9	1
General Schedule	10	1
General Schedule	11	1
General Schedule	12	45
General Schedule	13	134
General Schedule	14	48
General Schedule	15	23
Senior Executive Service	3	1
	Total	293

Table 3. PMCD Grade Structure of Authorize Positions [Source: Researcher]

JOB DESCRIPTION	JOB SERIES	Number of Positions
CHEMICAL ENGINEER	893	45
GENERAL ENGINEER	801	39
MECHANICAL ENGINEER	830	34
SECRETARY	318	31
ENVIRONMENTAL ENGINEER	819	20
QUALITY ASSURANCE SPECIALIST	1910	18
CHEMIST	1320	12
PROGRAM ANALYST	343	18
SAFETY ENGINEER	803	12
INDUSTRIAL ENGINEER	896	8
PUBLIC AFFAIRS SPECIALIST	1035	7
PHYSICAL SCIENTIST	1301	6
CIVIL ENGINEER	810	3
COMPUTER/ELECTRONICS ENGINEER	855	3
ENGINEERING TECH	802	3
ENVIRONMENTAL PROTECTION SPECIALIST	28	3
MANAGEMENT ASSISTANT	344	3
OPERATIONS RESEARCH ANALYST	1515	3
SAFETY AND OCCUP HEALTH SPEC	18	3
BUDGET ANALYST	560	3
ELECTRICAL ENGINEER	850	2
ENVIRON ENGR/SCIENTIST	809	2
MATERIALS MNGT SPEC	1103	2
OFFICE AUTOMATION CLERK	326	2
PROGRAM MANAGER	340	2
PROGRAM SUPPORT ASSISTANT	303	2
EDITORIAL ASSISTANT (OFFICE AUTOMATION)	1087	1
SECURITY/PERSONNEL SPEC	80	1
SUPPLY TECHNICIAN (OFFICE AUTOMATION)	2005	1
TRANSPORTATION ASST	2102	1
CONTRACT ADMINISTRATOR	1102	1
AUDITOR	511	1
SYSTEM ACQUISITION SPEC	301	1
Sum		293

Table 4. PMCD Authorized Positions by Job Series [Source: Researcher]

In addition to the data on job series and grade classifications for the PMCD's authorized positions, the mission is divided into five major tasks that reflect the basic organizational functions.

(1) Management. One of the major responsibilities of management is to perform long term or strategic planning. In addition, management has the responsibility to maintain a balance of the resources available to the organization with the requirements levied on the organization. The basic project management triangle of cost, schedule and performance drivers must be examined and compromises must be made in accordance with the judgments on the magnitude of outside environmental influences. In addition, since the PMCD is in a technology-based business, the managers are expected to be technically competent in order to evaluate the technical aspects of their various mission areas.

(2) Administration. Administration consists of the support functions of secretarial work, supply ordering and stocking, inventory control, and accountability of the existing PMCD government property.

(3) Business Functions. The business support functions in PMCD consist of budget planning and control, cost analysis (auditing), lessons learned tracking, data management, computer support, and human resource management.

(4) Technical Support. Technical support in the PMCD is the support required to monitor, review and technically evaluate work performed to meet requirements such as, technology assessments, design, fabrication, testing, operation and disposal of facilities and equipment related to the monitoring, assessment and disposal of chemical agents, munitions, and materiel.

(5) Professional Support. Professional support in the PMCD consists of several professional offices. The environmental monitoring office tasks include the review of PMCD permit applications and operational permits for compliance

with all Federal, State, and local laws related to the environment. The Risk Management and Security office requires personnel who can perform tasks related to risk management, quality control, and safety. The Public Affairs/Public Outreach and Information Office calls for tasks that are related to public relations, media and public speaking. In addition the PMCD requires tasks in support of legal advice.

The specific tasks of the PMCD organizational elements are described within the organizational functions. Details of the PMCD organization are provided at Appendix C.

b. The Types of Rewards the Work Can Provide

There are several rewards the work at PMCD can provide. When asked why they work at PMCD, the major response from PMCD employees was the moral decency of contributing to the destruction of chemical weapons. In their words, "it's a good thing to do." The second most popular response was that the technology was interesting. The personnel survey provides data specific to pay and benefits (question A and J) promotion potential (question G) relevant job experience to aid in career advancement (question I) and recognition (question F).

c. The Degree of Uncertainty Associated with the Work

The degree of uncertainty and routineness of the work associated with the PMCD organization is dependent on the type of work being performed. For the management function the work is dynamic, calling for analysis and decisions on a daily basis. The administrative functions tend to be more routine and repetitive. Functions such as supply ordering, stocking and inventory control, and property accountability of the existing PMCD government property, are highly regulated and routine. The business functions also tend to be routine, although specialized training is required. The technical

support function is a dynamic function as the support required to monitor, review and technically evaluate work performed to meet requirements such as technology assessments or the monitoring of contractor responsible for the design, fabrication, testing, operation and disposal of facilities and equipment related to chemical agents, munitions, and materiel is dependent on many external factors. The professional support functions such as the environmental monitoring office tasks include the review of PMCD permit applications and operational permits for compliance with all Federal, State, and local laws related to the environment. Since these laws and their interpretations are dynamic, this function is non-routine. The same logic applies to the risk management and security office, which supports tasks related to risk management, quality control, and safety. These are highly regulated fields being applied to situations that are not encountered in the private sector. As a result these offices are often setting precedent on the interpretation of these regulations as applied to chemical warfare material.

d. The Constraints on Performance Demands

The major constraints on performance demands inherent in the PMCD work strategy are due to constraints on schedules and funding. As discussed earlier the program must compete for funding with other DoD and Army programs and must meet the schedule constraints of the CWC treaty as mandated by Congress. To accomplish this the PMCD performs numerous Cost As an Independent Variable (CAIV) analyses, which trade off cost, schedule, and performance criteria against available funding. As a result tasks required by one of the subordinate PMs are sacrificed for any additional needs of another subordinate PM, for the greater good of the program. Another constraint on the performance is the amount of travel duty (TDY) that is required by various PMCD tasks. Many of the PMs, in particular the PMCSD, have work

requirements at several sites across the country and abroad. These tasks require personnel to be on site during testing or operations or other critical junctures, and these activities become constrained by the limitation of the people available to support them.

e. Summary of Task Organizational Component

The major dimensions of the tasks described in the previous sections for the PMCD are primarily as monitors of systems contract performers on a variety of technical, professional and administrative tasks. The interdependence of the task performers is high. As described earlier there are functional experts who work together with an assistant program manager who monitors the actions of several contractor personnel. Each of these individuals must perform tasks and support the project within the schedule constraints. The PMCD tasks require a relatively high graded individual (average grade authorization GS 12 step 3). The tasks require a professionally trained workforce, with seventy percent of the authorized job positions requiring a college degree. In addition fifty-nine percent of the authorized positions in PMCD are in the field of engineering requiring technical skills and knowledge. The autonomy of the tasks is high. The tasks must be performed on location as required by independent personnel. Even in the home office tasks are separated by function providing each career series independence in the performance of their tasks. Often individuals from a staff or business support office are assigned to a particular PM. These personnel report to their functional supervisor administratively, but they work independently, providing all specialized requirements from their field to support the PM.

2. Individual

The second component of the organization is the individuals who perform the tasks defined above. The idea is to define the characteristics of the employees [Ref. 6:p.

99]. The most critical characteristics are the knowledge and skills requirements, but also important are the different needs, preferences and expectations of the employees, as well as demographic factors such as age and sex.

a. Basic Knowledge and Skills of the Individuals

The basic skills and knowledge of the individuals in the PMCD organization are described in several statistics. The grade structure of the current 246 PMCD employees shows the level of experience and knowledge indirectly and is illustrated in Table 5.

Pay System	Grade Level	Number of Positions
General Schedule	4	3
General Schedule	5	1
General Schedule	6	9
General Schedule	7	20
General Schedule	8	4
General Schedule	9	1
General Schedule	10	1
General Schedule	11	1
General Schedule	12	33
General Schedule	13	106
General Schedule	14	45
General Schedule	15	21
Senior Executive Service	3	1
	Total	246

Table 5. Grade Structure of the PMCD Employees [Source: Researcher]

The job series of the 246 PMCD employees is also an indicator of the skills and qualifications of the employees. The distribution of PMCD employees by job series is described in Table 6.

JOB DESCRIPTION	JOB SERIES	Number of Personnel
CHEMICAL ENGINEER	893	35
GENERAL ENGINEER	801	33
MECHANICAL ENGINEER	830	28
SECRETARY	318	28
ENVIRONMENTAL ENGINEER	819	16
QASAS	1910	14
CHEMIST	1320	12
PROGRAM ANALYST	343	12
SAFETY ENGINEER	803	10
INDUSTRIAL ENGINEER	896	8
PUBLIC AFFAIRS SPECIALIST	1035	5
PHYSICAL SCIENTIST	1301	4
CIVIL ENGINEER	810	3
COMPUTER/ELECTRONICS ENGINEER	855	3
ENGINEERING TECH	802	3
ENVIRONMENTAL PROTECTION SPECIALIST	28	3
MANAGEMENT ASSISTANT	344	3
OPERATIONS RESEARCH ANALYST	1515	3
SAFETY AND OCCUP HEALTH SPEC	18	3
BUDGET ANALYST	560	3
ELECTRICAL ENGINEER	850	2
ENVIRON ENGR/SCIENTIST	809	2
MATERIALS MNGT SPEC	1103	2
OFFICE AUTOMATION CLERK	326	2
PROGRAM MANAGER	340	2
PROGRAM SUPPORT ASSISTANT	303	2
EDITORIAL ASSISTANT (OFFICE AUTOMATION)	1087	1
SECURITY/PERSONNEL SPEC	80	1
SUPPLY TECHNICIAN (OFFICE AUTOMATION)	2005	1
TRANSPORTATION ASST	2102	1
CONTRACT ADMINISTRATOR	1102	1
AUDITOR	511	
SYSTEM ACQUISITION SPEC	301	
	Sum	246

Table 6. PMCD Current Employees by Job Series

Two more factors that reflect the skills and knowledge of the PMCD employees are the number of years they have spent in government service, and the number of years they have worked at PMCD. Data for the number of years of government service was gathered in the personnel database, while the data for the years

of experience at PMCD was gathered through the personnel survey in question 3. Data for these two factors are shown in Figures 4 and 5.

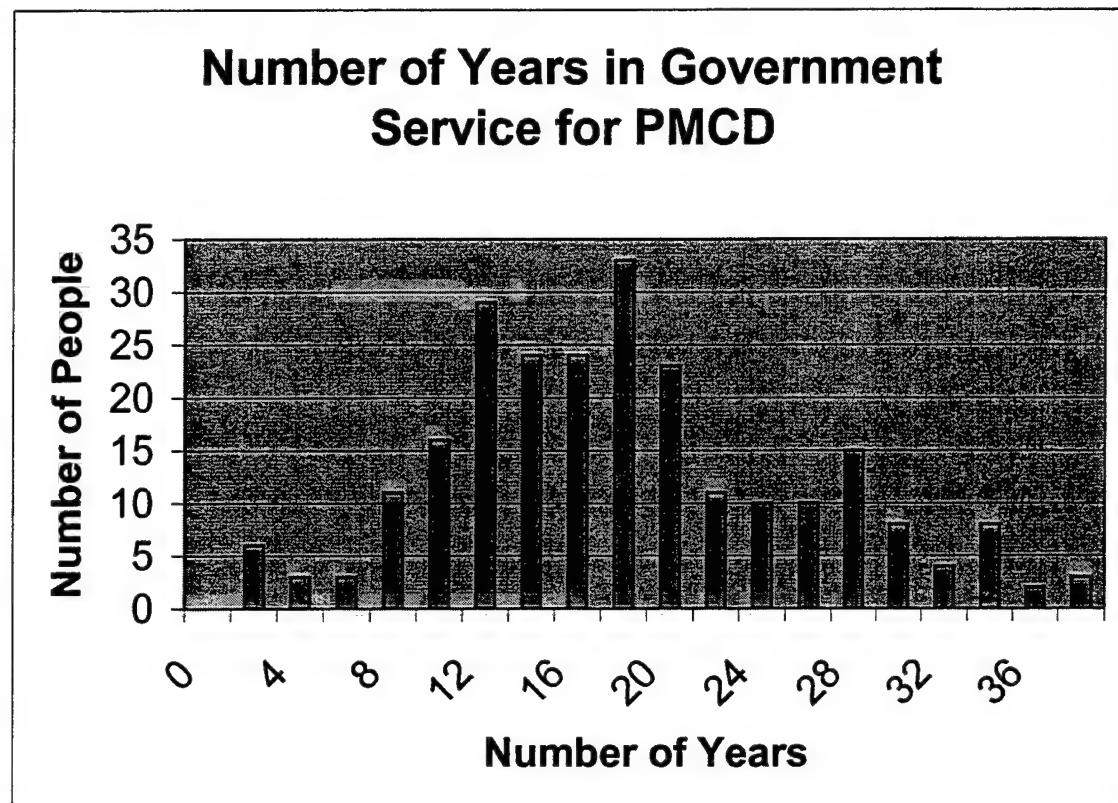


Figure 3. Distribution of the Numbers of Years in Government Service of PMCD Employees [Source: Researcher]

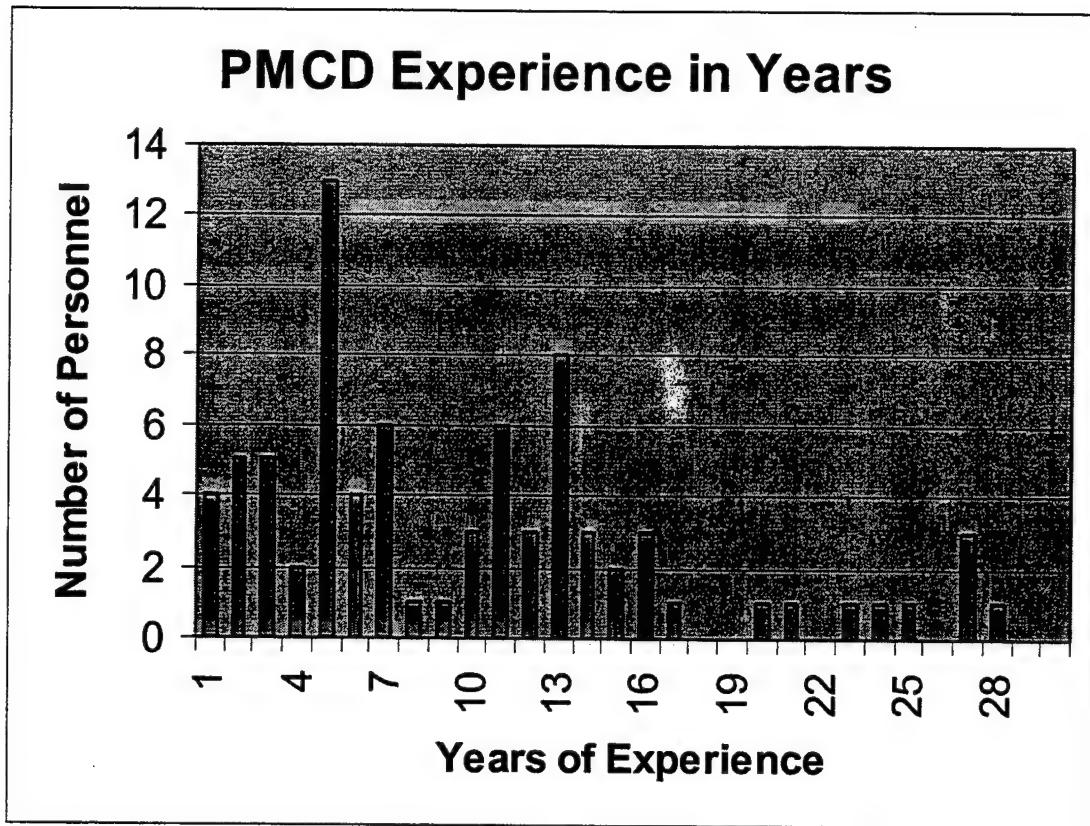


Figure 4. Distribution of the Numbers of Years Employees have been at PMCD

b. Individual Needs and Preferences

The individual needs and preferences of the PMCD employees are reflected in the data collected in several of the questions in the PMCD personnel survey. Questions 1, "Do you plan on retiring, or leaving government service at your earliest eligible date?", indicates the employees desire to retire upon eligibility or to keep working. Question 7, "Prior to the completion of the PMCD mission, would you move to another State to gain a promotion or a lateral transfer? ", indicates another preference, that of remaining at their present work location or moving to another state, either to keep there present job level (lateral) or for a promotion. Question 10 is also reflective of the

employee's preferences on work location. In question 10 "Would you be interested in any of the vacant PMCD field office jobs for which you could qualify for promotion or a lateral?", the question of moving to another state is specific to the field jobs located within the PMCD.

c. Individual Perceptions and Experience

The perceptions of the individual employees in the PMCD are reflected in the data from the personnel survey. Question 2, "Do you believe that the PMCD will finish the destruction of the stockpile by 29 April 2007? ", indicates the perception of the PMCD workforce in the viability of the present schedule requirements for the destruction of the chemical materiel, and therefore whether the PMCD will be dissolved upon completion of the mission as indicted. Question 5, "Do you think that a PMCD government support contractor's pay and benefits are less than, equal to, or more, than a similar government worker's pay and benefits? ", indicates the PMCD employees perception of a contractors pay and benefits in relation to their own. Question 6, "Are you concerned about the possibility of a RIF (reduction-in-force) action in PMCD when the PM mission is completed?", indicates the PMCD employees concern about job stability related specifically to being released or "fired". Question C on the personnel survey rates "job stability" specifically. Question B rates the employee perception of over all job satisfaction.

d. Individual Background Factors

There are several individual background factors that may have an affect on the retention of qualified employees in the PMCD. These factors include the age distribution of the employees in PMCD, which determines the employee's retirement eligibility. Another factor is the sex of the employee, or the distribution of gender in the

PMCD organization. The "core" or "matrix" designation of the individual employee's job may also influence the individual's perception that "core" positions are more permanent. As discussed earlier core positions belong to the PM while matrix positions are basically people "rented" from a home command to fill in on a temporary basis. The final factor discussed here is the retirement systems of the employees, either CSRS or FERS. The two systems differ in two important ways. First each system has a different eligibility requirement for retiring. An employee can be eligible for full benefits at age 55 under the CSRS system, while the FERS system age is 62 to 65 depending of the year in which the employee was born. However, CSRS employees must remain in Government service their entire career (30 years) to reach full retirement benefits. CSRS employees can leave Government service at any time with no substantial penalty.

e. Summary of the PMCD Individual Organizational Component

The individuals in the PMCD organization are high graded highly skilled individuals with technical or professional training. The individual employees in PMCD have an average grade authorization of a GS 12 step 2, with over seventy percent of the current employees at or above the GS 13 level. The PMCD individuals are professionally trained. Over seventy-two percent of the employees have a college degree. The PMCD individuals are technically oriented. Fifty-eight percent have engineering job series designations requiring technical skills and knowledge. The average age of the current PMCD workforce as of April 29, 2001 is 46.3, and it averages 19.2 years of Government service. The current PMCD employees have been with the organization an average of 9.7 years. The PMCD has a gender distribution of seventy percent male and thirty percent female. The individuals in the organization have a distribution of fifty-four percent

matrix employees and forty-six percent core employees. The distribution of the retirement systems is fifty-seven percent FERS and forty-three percent CSRS.

3. Formal Organization Arrangements

The third component of the organization is the organization's structure. These structures are created to assist the individuals in the organization in the performance of their assigned tasks. The hierarchical structure shows the formal mechanisms used to direct and structure the workflow in the organization.

a. *Organizational Design*

The formal organizational arrangements for the PMCD are shown at Figure 5 in the functional organizational chart.

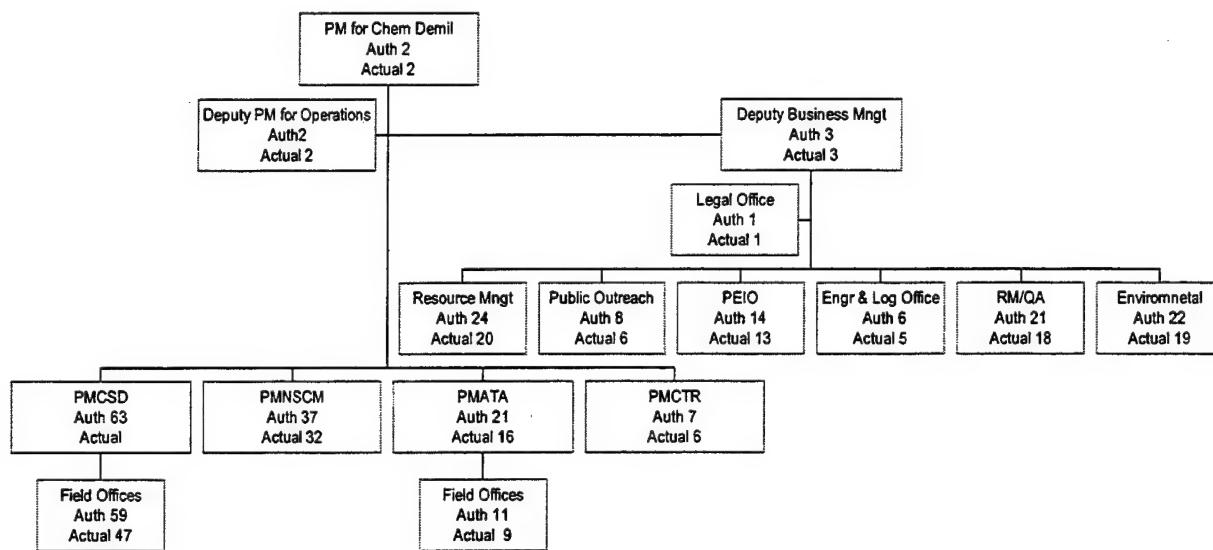


Figure 5. PMCD Organizational Chart [Source: Researcher]

The numbers in each of the organizational boxes indicates the number employees authorized, and the current employees on board as actual. Each of the various organizational elements was described earlier in section IV.1.a.

The organizational structure shows that sixty-seven percent of the authorized positions in the PMCD organization are in the subordinate PM elements. Thirty-one percent reside in the support staff functions defined earlier in section IV.1.a. Another descriptor of the organization structure is the distribution of the grade levels. The PMCD authorized grade structure is shown in Table 7.

Pay System	Grade Level	Number of Authorizations	Percent of PMCD Authorizations
General Schedule	4	3	1%
General Schedule	5	1	0%
General Schedule	6	10	3%
General Schedule	7	21	7%
General Schedule	8	4	1%
General Schedule	9	1	0%
General Schedule	10	1	0%
General Schedule	11	1	0%
General Schedule	12	45	15%
General Schedule	13	134	46%
General Schedule	14	48	16%
General Schedule	15	23	8%
Senior Executive Service	3	1	0%
	Totals	293	100%

Table 7. PMCD Authorized Positions by Percent of Grade Level

As can be seen from Table 7, the organization is very flat with forty-six percent residing at one grade level (GS 13), and seventy-six percent residing within one level of the GS 13 level (GS 12 through 14).

b. Job Design

Data concerning the job order design consists of the out year staffing plan [Ref. 5] that define the future year manning requirements for the PM. This plan is documented by the RMO of the PMCD organization and submitted to higher headquarters for authorization of staffing levels in future years. The plan is summarized in Figure 6.

	FY01	FY02	FY03	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11
Office of the PM	2	2	2	2	2	2	2	2	2	2	0
Deputy PM for Ops	1	1	1	1	1	0	0	0	0	0	0
Deputy PM for Bus Mngt	0	0	0	0	0	0	0	0	0	0	0
Legal Office	1	1	1	1	1	1	1	1	1	1	0
Resource Mngt	20	24	24	23	22	22	20	20	15	15	15
Public Out Reach	8	8	8	7	7	7	7	5	4	3	0
PEIO	14	14	14	14	12	11	9	5	4	1	1
Eng & Log Office	6	6	6	6	6	5	0	0	0	0	0
RM/QA Office	21	19	19	19	19	18	17	13	8	6	0
Environmental Office	22	22	20	20	18	16	14	8	7	4	4
PMCSO	55	55	51	49	43	31	27	16	12	10	9
PMCSO Field Offices	66	75	82	77	70	64	62	58	36	22	14
PMNSCM	38	38	38	38	38	38	38	31	0	0	0
PMATA	21	21	21	20	16	14	5	3	0	0	0
PMATA Field Offices	11	18	22	23	23	23	17	5	4	0	0
PMCTR	7	7	6	6	5	5	5	5	5	5	5
	293	311	315	307	287	261	238	174	101	69	48

Figure 6. PMCD Future Years Staffing Requirements

The future staffing requirements of the PMCD organizations are based on the current schedule estimates primarily driven by the requirements of the PMCSO mission. The current PMCSO schedule is shown at Figure 7. The dashed line in FY07 is the CWC treaty milestone date for destruction of the stockpile materiel. No schedules are shown for Pueblo Chemical Agent Disposal Facility (PUCDF) or Bluegrass Chemical Agent Disposal Facility until the independent Program Manager for Assembled Chemical Weapons Assessment (PMACWA) selects a viable destruction technology for use at these two bulk storage sites.

SITE	95 2 3 4 1	96 2 3 4	97 1 2 3 4	98 1 2 3 4	99 1 2 3 4	00 1 2 3 4	01 1 2 3 4	02 1 2 3 4	03 1 2 3 4	04 1 2 3 4	05 1 2 3 4	06 1 2 3 4	07 1 2 3 4
JACADS													
TOCDF													
ANCDF							CONST / SYS				OPS		
UMCDF							CONST / SYS				OPS		
PBCDF							CONST / SYS				OPS		
PUCDF *										Schedules TBD			
BGCDF *										Schedules TBD			

Figure 7. PMCSD Stockpile Disposal Schedule

c. Work Environment

There are several data elements concerning the work environment of the PMCD. A direct rating of the physical working environment was obtained through the personnel survey under question K. Job flexibility defined as the availability of Scheduled Days Off (SDO) and flextime was also rated in question D of the personnel survey. Consideration of others was rated in question M of the personnel survey. In addition other factors of the work environment were also gathered. Data on the rate and amount of turnover of PMCD personnel over the last five years was gathered. Lastly data on the vacancy rate of the PM was compiled by organizational element.

d. Human Resource Management

The Human Resource Management function of the PMCD is limited by the rules that apply to recruiting, hiring, rating, and compensating which apply to all government employees. These rules include, civil service laws, Executive orders, regulations and policies to ensure fairness to applicants and employees, are collectively referred to as the merit system principles. This system is inflexible and is applied rigidly to all government agencies.

e. Summary of Formal Organizational Arrangement Component

The formal organization of the PMCD exhibits many of the characteristics of a Professional Bureaucracy as defined by Henry Mintzberg [Ref. 16]. The organization relies on trained professional personnel. Each professional works relatively independently, within his or her field of expertise. Coordination between functions is effected through standardization of skills. The operating core of the PMCD organization comprises over two thirds of the organizations personnel. Most of the rest of the personnel are in supporting staff functions. This arrangement typifies the wide at the bottom and narrow elsewhere grouping defined by a professional bureaucracy [Ref. 16].

4. Informal Organization

No analysis was undertaken on the informal PMCD organization. The PMCD is made up of several disparate subordinate PM entities that function independently. Because there is little interaction between the subordinate PMs there exists no real informal organizational structure. It was assumed therefore that the informal organizational relationships have no influence on the ability of the PMCD organization to retain qualified employees.

5. Diagnoses of the State of Fits for the Internal PMCD Organizational Components

In the following sections the extent to which the two components being compared are consistent with each other will be evaluated. Nadler and Tushman define this relationship as "the degree to which the needs, demands, goals and objectives, and/or structures of one component are consistent with the needs, demands, goals and objectives, and/or structures of another component" [Ref. 6:p. 100].

a. Individual/Organization

The individuals in the PMCD are characterized as high graded highly skilled individuals with technical or professional training. The organization is characterized as a professional bureaucracy, relying on standardization of skills and professionally trained personnel. These elements are determined to be congruent and consistent in goals and objectives.

b. Individual/Task

Again, the individuals in the PMCD are characterized as high graded highly skilled individuals with technical or professional training. The required tasks in the PMCD organization are characterized as functional, technically demanding, but relatively independent of each other. Again, these elements are determined to be congruent and consistent in goals and objectives.

c. Task/Organization

As described above, the required tasks in the PMCD organization are characterized as functional, technically demanding, but relatively independent of each other. The organization is characterized as a professional bureaucracy, relying on standardization of skills and professionally trained personnel. These elements are once again determined to be congruent and consistent in goals and objectives.

6. Diagnoses of the State of Fits for the External PMCD Inputs (Environment and Resources), Strategy, and the PMCD Organization

The concept of congruence exists not only for the internal components of an organization, but also between the organization and its inputs. "At the highest level of abstraction is the question of how well the system as a whole is functioning" [Ref. 6]. There are three key issues to be addressed in the systems relationships:

- How well is the system attaining its desired goals of production, output, and return on investment?
- How well is the organization utilizing its available resources?
- How well is the organization adapting to its environment and maintaining favorable transactions over time [Ref. 6].

The congruence of the PMCD system is described in the following sections.

a. PMCD System Inputs/Organization

The PMCD organization and its environment are incongruent. The PMCD organization was described as a professional bureaucracy. A professional bureaucracy works best with a complex and stable environment [Ref. 16:p. 107]. While the PMCD environment is complex, it is dynamic, not stable. The PMCD clients and customers, governmental regulating bodies, competitors, and special interest groups, force changes in public laws, federal and state environmental laws, and PMCD funding levels. The PMCD organization can not react quickly enough to respond to this situation. This incongruency constrains the PM by limiting the amount of strategic planning that can be performed. The PM can only ask for the number of personnel who can be supported by the latest approved schedule. If the schedule changes the PM will have personnel and funding requests that are not synchronized with the actual mission requirements.

b. PMCD Strategy/Organization

The PMCD strategy is incongruent with the organization. Inherent in the PMCD strategy is the overall strategy of the federal government. For the past ten years that strategy has been driven by the demand of taxpayers to draw down military requirements, and downsize the federal government. The downsizing guidelines have

constrained the hiring policies of the PMCD. The current PMCD workforce has been shaped by retirements, and the availability of internal government matrix personnel, not necessarily by mission requirements. The PMCD strategy is based on a temporary organizational structure utilizing matrix personnel. At the completion of the Chemical Demilitarization mission the matrix personnel return to their home command and the PMCD organization is terminated. This strategy is incongruent with the organization of the PMCD. Because of the short-term basis of the PMCD program schedule, the PMCD has been unable to utilize several of the recruitment and retention policies available to government managers. There exists no long-term training requirement in an organization that has no perceived long-term mission. As a result policies such as internships, which provide career progression, and rotational assignments have not been utilized by the PMCD organization. In addition, the PMCD has a significant number of matrix employees (over half). The PMCD is not responsible for the long-term training of these personnel. In theory, matrix personnel are relatively short term and should return to their home command for training. In practice PMCD matrix personnel have been with the agency as long as many of the core personnel, and their actual long term training has been similar to that of the core personnel.

7. Identify Critical Problems

The results of this analysis indicate that the problems associated with the retention of personnel in the PMCD organization do not lie in the internal relationships between the components in the PMCD organization. As a result attempts to solve this problem by modifying one or more of these three elements, tasks, individuals, or formal organizational structure will probably not be effective. Instead the problems lie in the inputs of the organization, particularly the relationships between the environment, the

organizational strategy, and the organization. The environmental inputs through public laws have influenced many of the aspects of the PMCD program. The primary effect of the public laws has been to limit the PMCD ability to perform strategic planning due to the limited programmatic length. This lack of long term planning makes it particularly difficult to recruit and maintain personnel. In addition the program strategy to terminate the program office upon completion of the primary mission, with no transition of personnel, negatively influences prospective employees. The following chapter will analyze the data that defines the current employees in the PMCD organization to determine which factors are relevant to them, and which policies may be most effective in retaining these individuals.

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VI. SURVEY DATA ANALYSIS

A. PERSONNEL DATABASE

The personnel database shows specific demographic characteristics of the PMCD workforce. These factors were analyzed to determine what effects they may have on the motivation and general satisfaction levels of the workforce. These factors will influence the ability of the PMCD to retain qualified personnel in the organization.

1. The Age of the PMCD Employees in Years

In a healthy organization with a continuing mission one would expect to see a relatively normal distribution of ages ranging from younger entry level trainees at one end, middle-aged journeymen in the center, and older senior level management at the opposite end. In this scenario the average age should tend to the center region of the journeyman position. Federal employees under the CSRS are eligible to retire at the age of 55, and have entry ages around 18 for blue-collar workers and 22 for white-collar workers. Given these initial assumptions one would expect the average age of a Government employee to be roughly 38. This distribution would ensure that an adequate pipeline of new hires and journeymen would be available to succeed senior staff as they retire. The current average age of the PMCD workforce is 46.3. The distribution of the ages of the PMCD workforce is shown at Figure 8.

Age Distribution of PMCD as of APR 2001

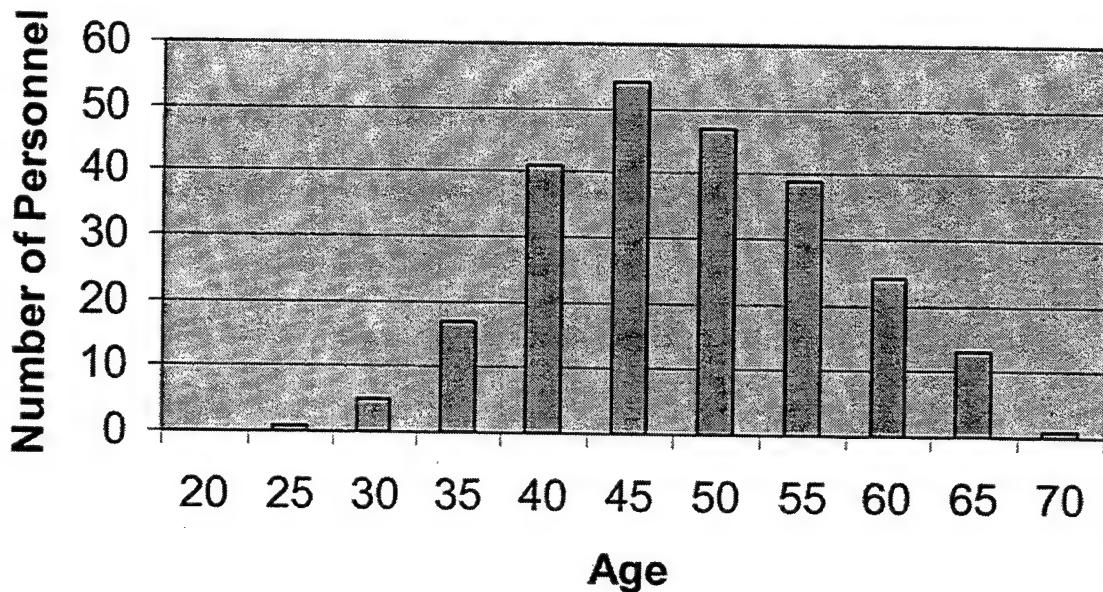


Figure 8. Age Distribution of PMCD Employees [Source: Researcher]

This graph shows that the relative distribution of ages in the PMCD workforce is fairly normal, but is skewed to the right with a mean value (46.3) that will be significantly higher than the value of the expected normal distribution of 38. However, what is of primary concern is the relatively high number of employees at or above the age of 55. PMCD currently has 38 (over 15% of the total PMCD population) employees at or above the age of 55.

2. Service Time

Service time is the total amount of time an individual has credited in the service of the Federal Government. It is both an indication of the individuals current skill level or experience, and it is used in the determination of retirement eligibility. The average

number of years in the government for the PMCD workforce is 16.5 as shown in Figure 9.

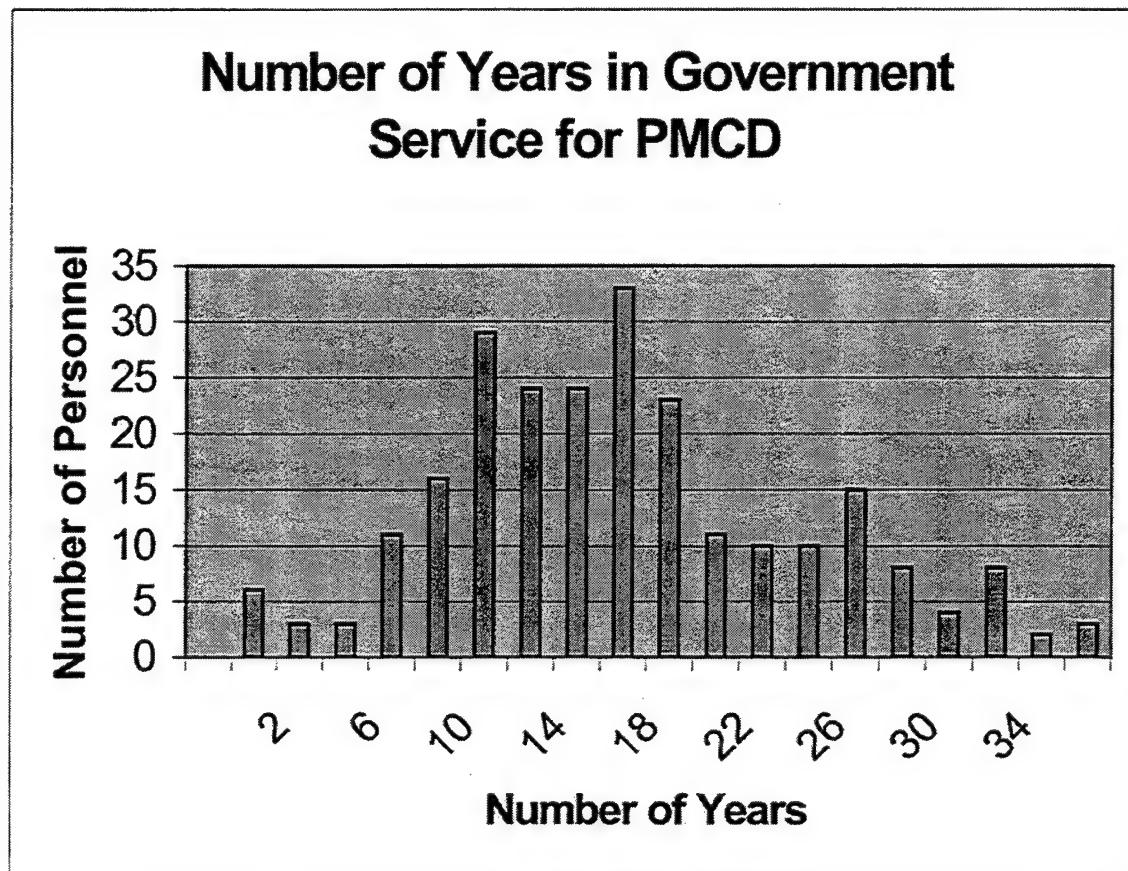


Figure 9. Service Time of PMCD Employees [Source: Researcher]

The graph at Figure 9 shows that the distribution is relatively normal and indicates that the PMCD organization has an even mixture of government experience. However this graph does not match up with the distribution in ages indicating that many of the older personnel in PMCD have not worked continuously for the government.

3. Retirement System

The employees retirement system (CSRS or FERS) will determine the year of eligibility and the amount of their retirement benefits. Personnel under the CSRS system can retire at age 55 with full benefits. Personnel under the FERS system do not reach full

benefits until age 62. At the present time the PMCD has 105 people under the CSRS system and 141 under FERS. When asked if they would retire at their earliest eligible date, 68% of the employees under CSRS, and 63% of the employees under FERS indicated they would.

4. Core/Matrix Designation

The PMCD utilizes long-term (2-10 years) matrix staffing from the U.S. Army Chemical and Biological Command to support their TDA structure. At the present time the PMCD has 246 civilians, 113 (46%), core and 133 (54%) matrix.

B. HOME OFFICE PERSONNEL SURVEY

The survey was designed to analyze potential factors that may influence the retention of the PMCD workforce. The survey is shown in its entirety at Appendix B. The results of the survey are shown in Figure 10. The survey is constructed in two sections. The first section of questions, using short answer or multiple choice, was derived from issues presented by the PMCD for evaluation. The second section of questions, utilizing a rating scale of 1 to 10, and deals with factors affecting the motivation and satisfaction of the PMCD workforce.

	<i>Count</i>	<i>Sum</i>	<i>Average</i>
Question 1	78	51	0.6538
Question 2	78	8	0.1026
Question 3	78	760	9.7436
Question 4	78	34	0.4359
Question 5	76	107	1.4079
Question 6	78	37	0.4744
Question 7a	78	32	0.4103
Question 7b	78	14	0.1795
Question 8	78	35	0.4487
Question 9	78	37	0.4744
Question 10a	78	21	0.2692
Question 10b	78	7	0.0897
Question A	78	496	6.3590
Question B	78	474	6.0769
Question C	78	566	7.2564

Question D	78	597	7.6538
Question E	78	470	6.0256
Question F	78	388	4.9744
Question G	78	316	4.0513
Question H	78	377	4.8333
Question I	78	447	5.7308
Question J	77	498	6.4675
Question K	78	503	6.4487
Question L	78	467	5.9872
Question M	78	321	4.1154

Figure 10. Results of the Personnel Survey Questions [Source: Researcher]

1. Section 1 – PM Issues

The first survey question addresses the issue of whether a person's retirement eligibility will have a direct correlation to their actual retirement. In response to this question over 65% of the respondents indicated that they were planning on retiring upon their earliest eligible date. Utilizing this statistic and calculating the eligibility dates for each person, predictions can be made on the number of personnel expected to retire from the PMCD workforce in the upcoming years.

The second survey question deals with the issue of whether an individual believes that the mission will terminate in 2007. This indicates their relative sense of imminence of the need to seek new employment. Only 8 out of 78 or 10.3% indicated that they thought that the PMCD would finish its mission by the CWC treaty stipulated end date of April 29, 2007. This means that the workforce does not believe that their jobs will be terminated in 2007. Survey question three indicates the actual years of experience that each person has in the PMCD organization. The distribution of the results of question three are shown at figure 11.

PMCD Experience in Years

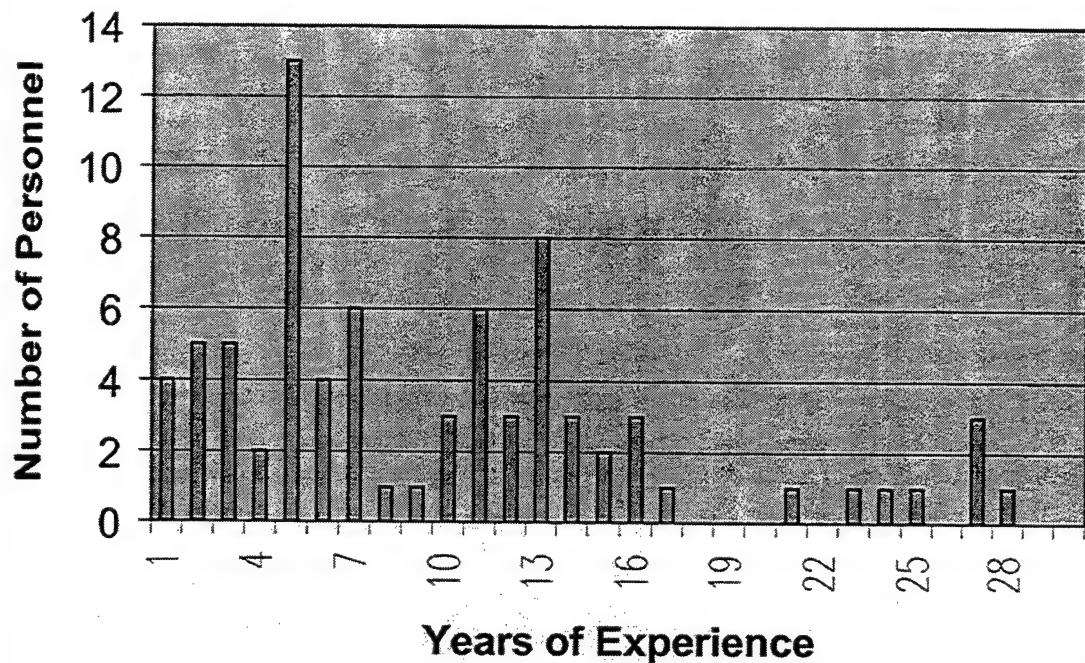


Figure 11. Years of Experience in PMCD Organization

This distribution shows experience specific to the PMCD and is not a normal distribution.

This graph indicates a BI-modal distribution where the experience level centers around five years or thirteen years of experience. There is virtually no one with eight or nine years of experience. This indicates that the PMCD hired in two distinct periods of time.

Survey question four is a confirmation of the PMCD training record to indicate what percent of the personnel in the organization participated in any Government sponsored training within the last year. The results of the survey indicate that about 44% of the workforce received government sponsored training. This statistic indicates that the home office personnel received a greater share of the overall training than the field office personnel.

Survey question five is designed to show the PMCD employee's perception of the pay and benefits of the support contractors working for the government. The survey indicated that 57% of the respondents think that contractors make more than Government workers 36% think they make about the same, and 17% think they make more. This indicates that for the most part the workforce believes that they can make more money working for a contractor than working for the government.

Survey question six is another question designed to indicate the complacency of the workforce, particularly that of the matrix employees. When asked if they were concerned about a reduction in force action when PMCD completes its mission, only 47% said they were concerned. This number is almost identical to the number of core employees (46%) in the home office workforce. The core employees by definition terminate upon completion of the mission.

Survey question seven is an indicator of the willingness of the current employees to move to another state for a promotion, or for a lateral move outside of the PM. Over 41% of the respondents indicated that they would move to another state for a promotion. That figure dropped to 18% when the job in question was a lateral transfer.

Survey question eight was used to compare if the "Matrix" or "Core" designation was a factor in how respondents answered the other questions. A statistical test comparing the means of the responses for matrix and core distributions indicated that the means of questions three, seven, nine and ten were significantly different. In question three, matrix personnel averaged 6.8 years of experience while core personnel averaged 12.1. This indicates that the core personnel have been with the agency almost twice as long as the matrix personnel have. Question seven shows that over 51% of the matrix

respondents indicated that they would move to another state for a promotion, while only 33% of the core employees would. The figure for a lateral transfer was 26% for matrix employees and only 12% for core employees.

Survey question nine like question eight is used for comparative purposes to see if the "CSRS" or "FERS" designation is a factor in how they answered the other questions. A statistical test comparing the means of the responses for CSRS and FERS distributions indicated that the means of questions eight, and ten were significantly different. Question eight indicates that 35% of the CSRS employees are matrix employees and 54% of the FERS employees are matrix employees. In question ten the CSRS employees indicated they would take a field office job for a promotion 16% of the time, while the FERS employees indicated a rate of 37%. When the field office job was only a lateral the response rate fell for the CSRS employees to less than 3%, while the FERS employees also fell to 15%.

Survey question ten is a direct indication of the ability of the PM to attract qualified personnel to field office jobs. Question seven is used in conjunction with survey question ten to indicate the willingness and probability of the current workforce to accept current vacancies in field office positions. If a person indicates he or she will move to another state for a promotion, but will not accept a field office position, then one can not assume that the field office positions are harder to fill solely because they entail a move to another State. The results from question ten indicate that 27% of the workforce is willing to move to another state to take a field office job if it is a promotion. When the field office job is only a lateral the rate falls to 9%. These rates can be compared to those of question seven, where it is shown that 41% of the workforce is willing to move to

another state for a promotion, but only 27% will move to another state for a promotion to a field office position. Similarly when the job is only a lateral 17% of the workforce will move to another state for a lateral, but only 9% will move to another state for a lateral to a field office position. This indicates that there is a significant reluctance on the part of the workforce to occupy field office jobs.

2. Section 2 – Motivation and Satisfaction Factors

The second portion of the survey is an analysis based on Herzberg's "hygiene" and "motivator" factors discussed in section II.A of this thesis. These factors relate to the individual's relative sense of happiness and satisfaction with their present job. Each individual was asked to rate each of the factors from one to ten with one being the lowest score defined as "highly dissatisfied" and ten being the highest score defined as "highly satisfied". Five was the neutral score defined as "neither satisfied nor dissatisfied". The factors and their ratings are listed below:

Question A. Rating of pay – The amount of basic compensation in dollars received on a per hour basis. This question received an overall rating of 6.4. The distribution of the responses for question A is shown at Figure 12.

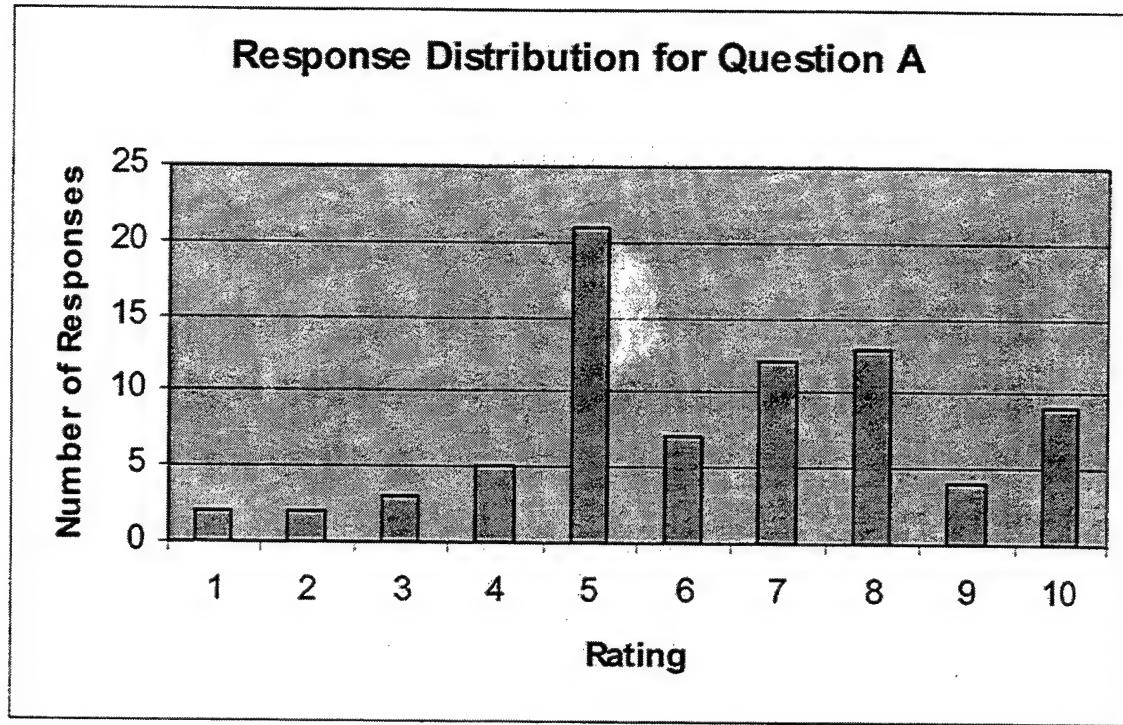


Figure 12. Question A - Response Distribution

The distribution shows that the most frequent response was the neutral rating of 5, but overall the distribution is skewed to the right. This indicates that for the most part the employees at PMCD are satisfied with the basic pay they receive.

Question B. Job Satisfaction – The overall sense of satisfaction in your present position. This question received an overall rating of 6.1. The distribution of the responses for question B is shown at Figure 13.

Response Distribution for Question B

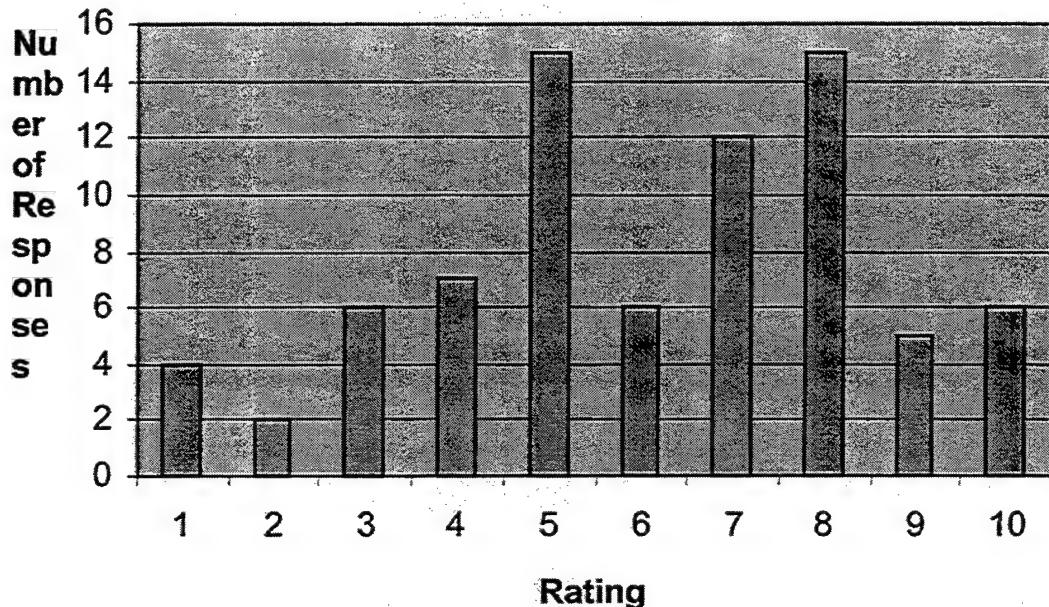


Figure 13. Question B – Response Distribution

This distribution indicates a wide range of responses. The most frequent response was a tie between a neutral rating of 5, and a high rating of 8. Overall the job satisfaction of the PMCD workforce is reasonably high, but there are a significant number of ratings below 5 (nineteen out of seventy-eight or 24%).

Question C. Job Stability – Do you feel that you can remain in your current position until you choose to leave? This question received an overall rating of 7.3. The distribution of the responses for question C is shown at Figure 14.

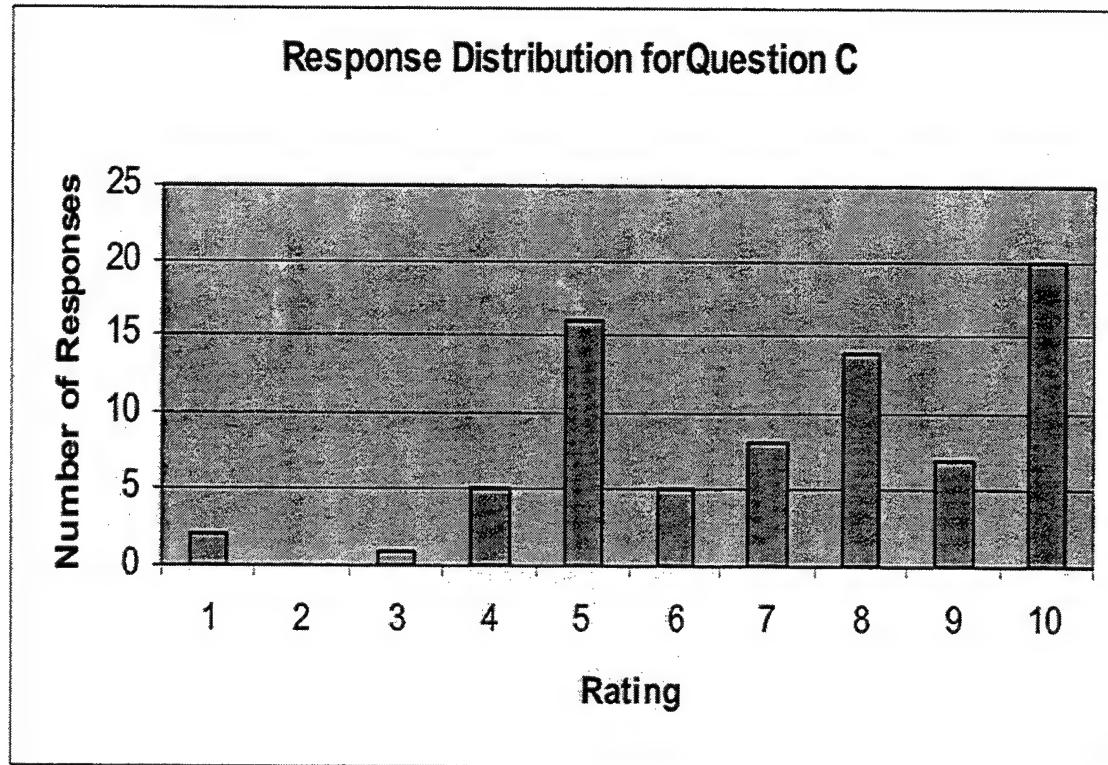


Figure 14. Question C – Response Distribution

The most frequent response was the maximum rating of 10. The distribution is skewed to the right with very few responses less than the neutral 5 rating. Overall the PMCD workforce is very satisfied with their perceived job stability. This question received the second highest rating of any of the questions.

Question D. Rate the ability of your job to offer a flexible schedule to accommodate your personnel desires. This question received an overall rating of 7.7. The distribution of the responses for question D is shown at Figure 15.

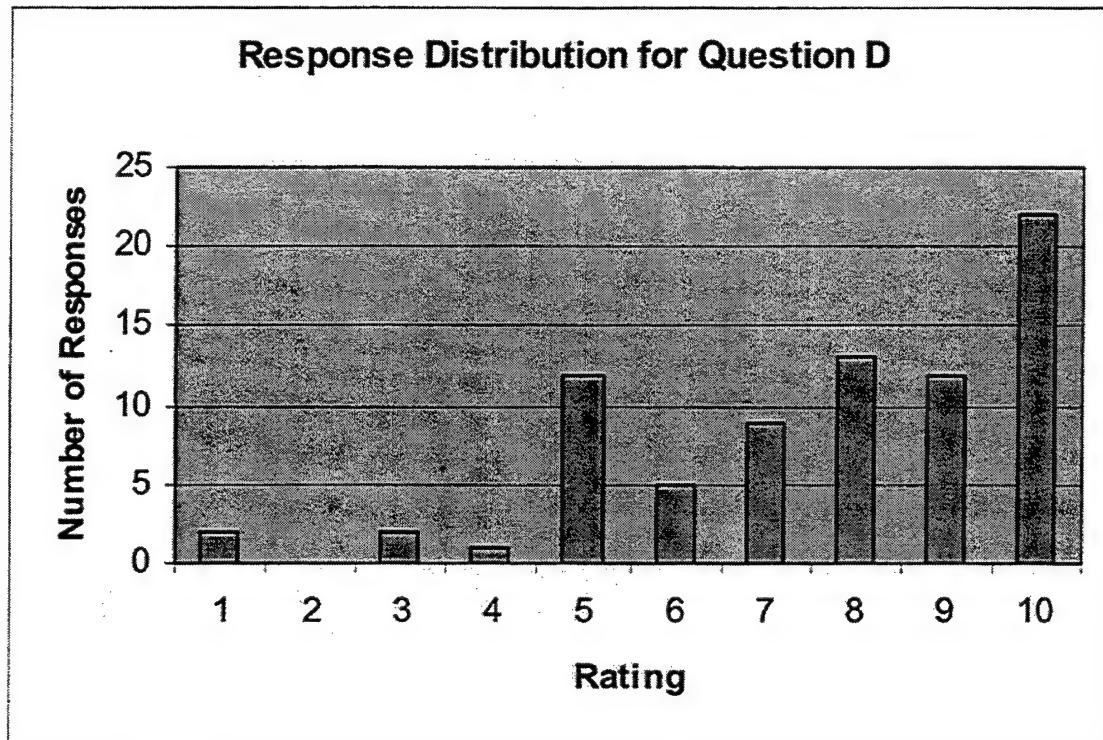


Figure 15. Question D – Response Distribution

The most frequent response was the maximum rating of 10. The distribution is skewed to the right with very few responses less than the neutral 5 rating. Overall the PMCD workforce is very satisfied with their perceived flexibility of their job structure. This question received the highest rating of any of the questions.

Question E. Amount of Travel – Do you feel the amount of time spent on travel is too much, too little, or acceptable. This question received an overall rating of 6.0. The distribution of the responses for question E is shown at Figure 16.

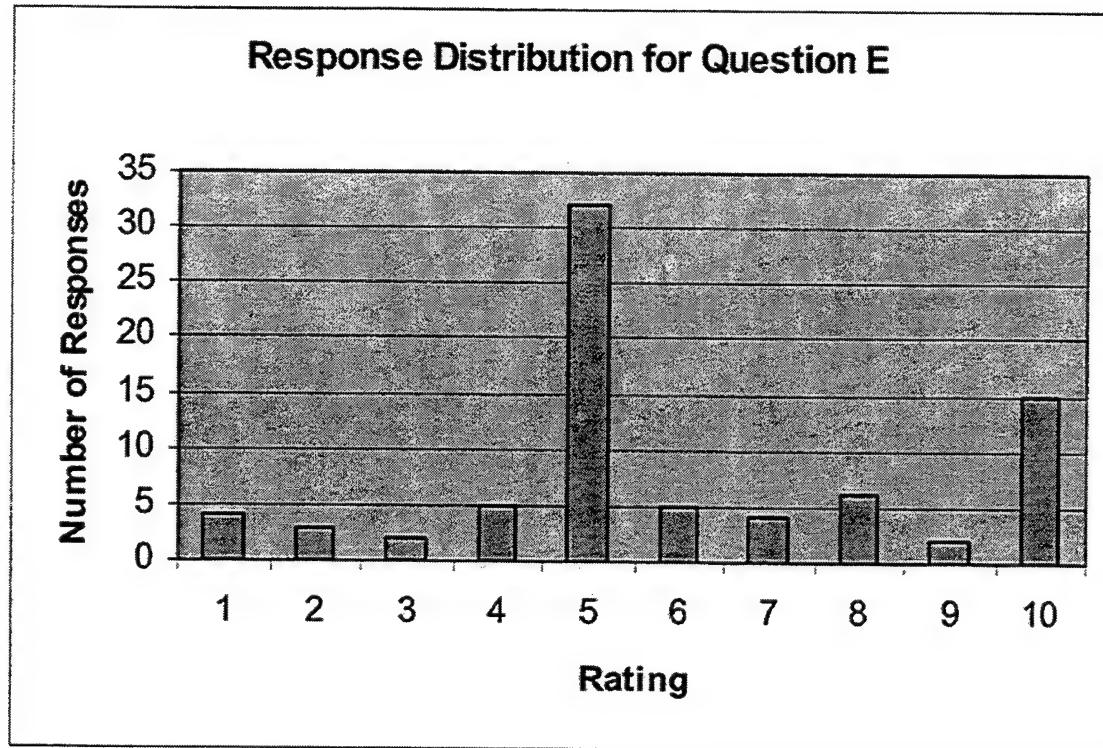


Figure 16. Question E – Response Distribution

The most frequent response by a factor of two was the neutral rating of 5. The distribution is BI-modal indicating that there are other factors influencing the ratings. It is possible that since only about twenty-five percent of the PMCD workforce travel frequently, this distribution indicates is that for those who do not travel, they are relatively neutral or highly satisfied because they don't have to travel. Fourteen out of seventy-eight responses (18%) indicated a less than neutral rating. Overall the PMCD workforce is satisfied with their perceived amount of required travel.

Question F. Recognition – Do you feel the organization appropriately recognizes personnel who deliver high quality work? This question received an overall rating of 5.0. The distribution of the responses for question F is shown at Figure 17.

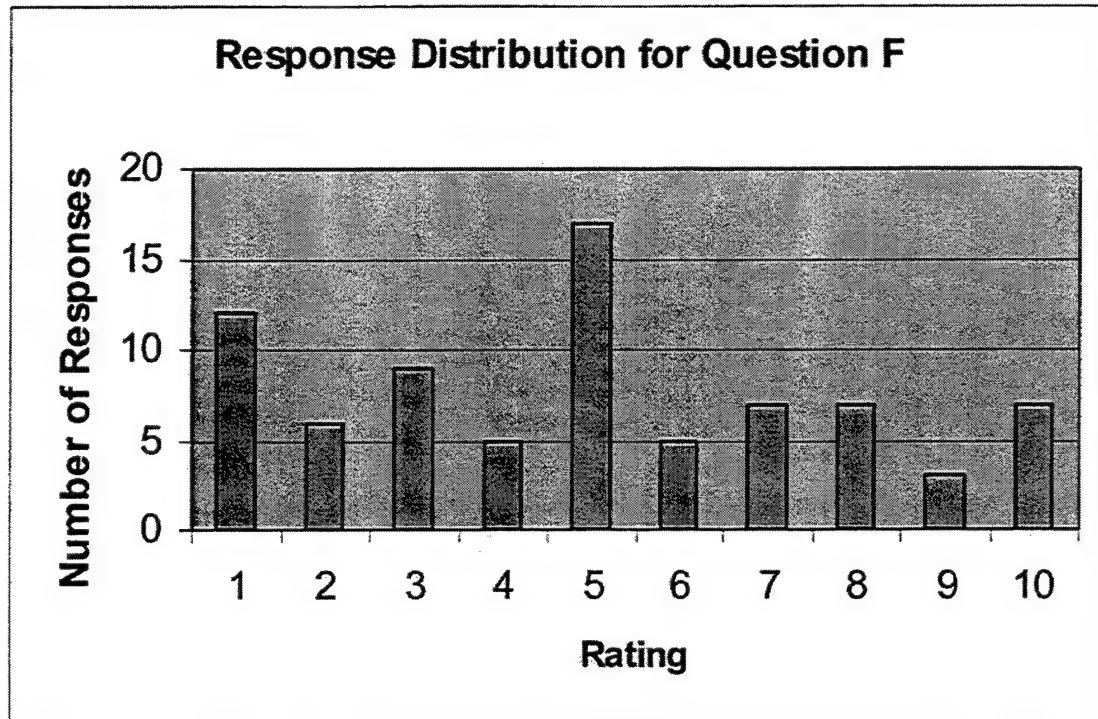


Figure 17. Question F – Response Distribution

The most frequent response was the neutral rating of 5, but there were a significant number of the minimum response 1 (twelve out of seventy-eight or 15%). In all forty-one percent of the respondents rated this factor below the neutral rating. This indicates that a significant portion of the PMCD workforce is not satisfied with the amount and type of recognition given to them.

Question G. Potential for Advancement – Do you think that the organizational structure and management allow for employees who demonstrate a high potential to be promoted? This question received an overall rating of 4.1. The distribution of the responses for question G is shown at Figure 18.

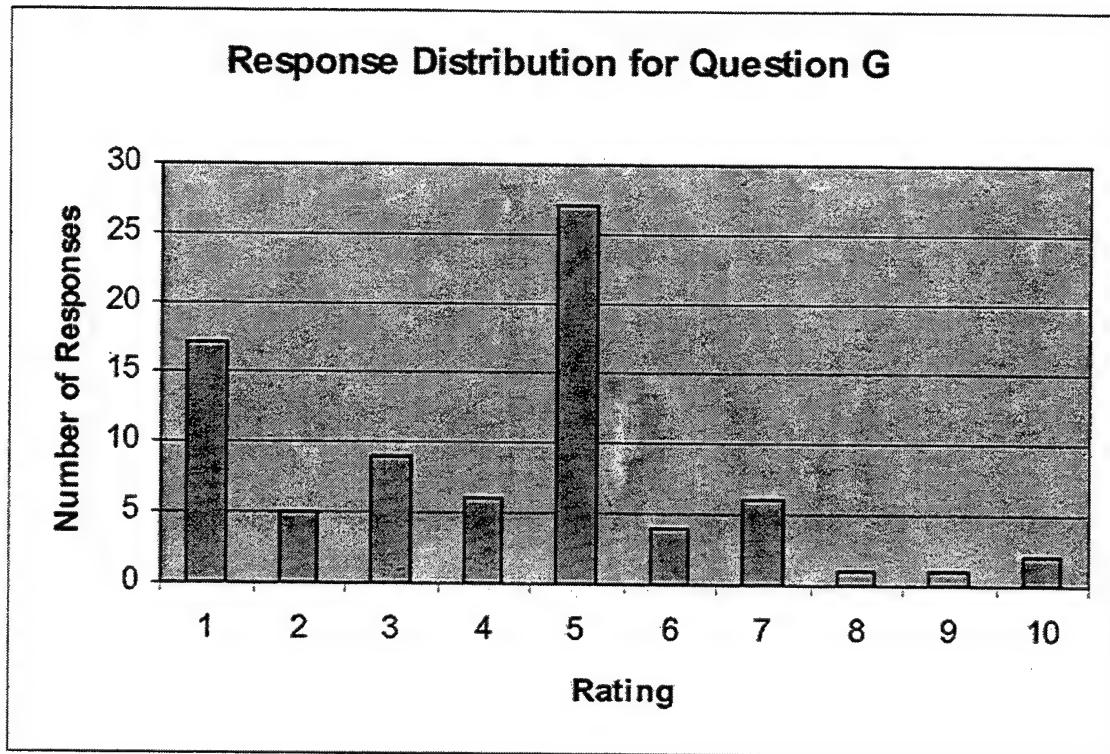


Figure 18. Question G – Response Distribution

The most frequent response was the neutral rating of 5, but there were a significant number of the minimum rating of 1 (seventeen out of seventy-eight or 22%). In all forty-seven percent of the respondents rated this factor below the neutral rating. This indicates that a significant portion of the PMCD workforce, almost half, is not satisfied with the advancement opportunities available to them in the PMCD organization.

Question H. Training – Are you satisfied with the amount of training you have requested and received from this organization in your present job? This question received an overall rating of 4.8. The distribution of the responses for question H is shown at Figure 19.

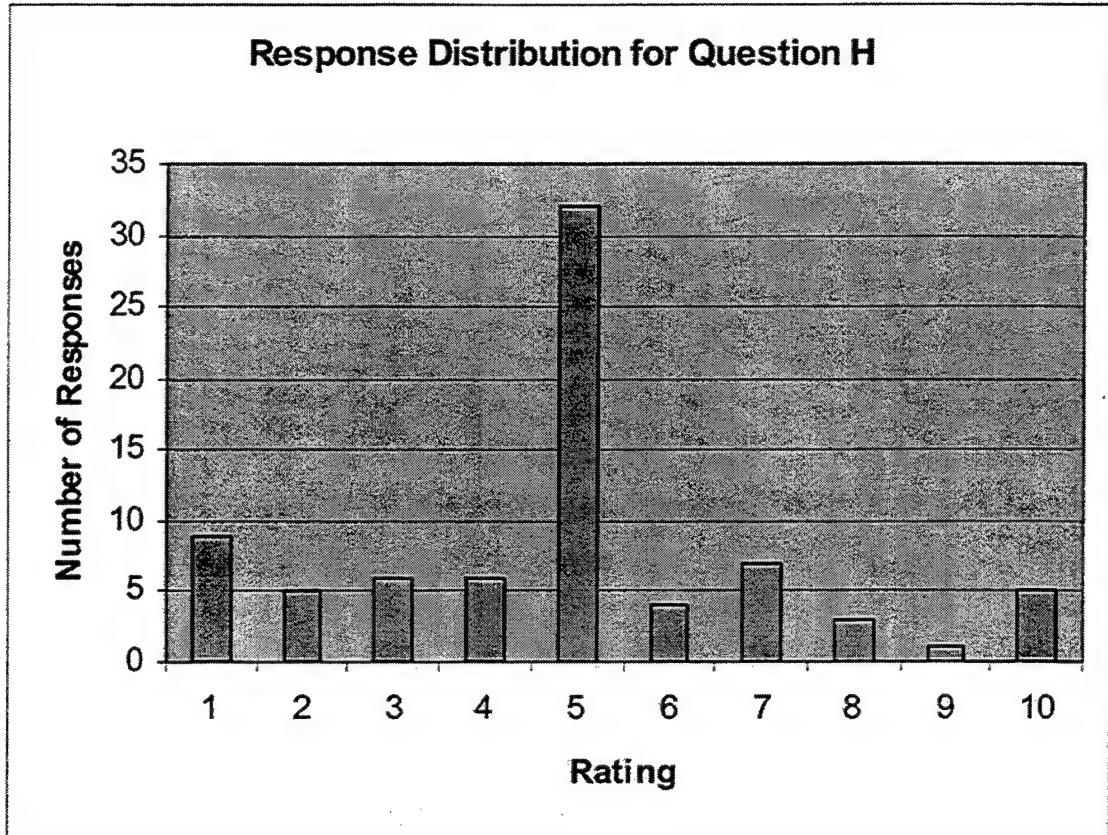


Figure 19. Question H – Response Distribution

The most frequent response was the neutral rating of 5, but there were eight minimum responses of 1, and twenty-five responses below the neutral rating of 5. This indicates that in general the PMCD workforce is neither satisfied nor dissatisfied with the training available to them in the PMCD organization.

Question I. Experience (relevance to future employment) – Do you feel the job experience you have received in your present position will help you advance in your career? This question received an overall rating of 5.7. The distribution of the responses for question H is shown at Figure 20.

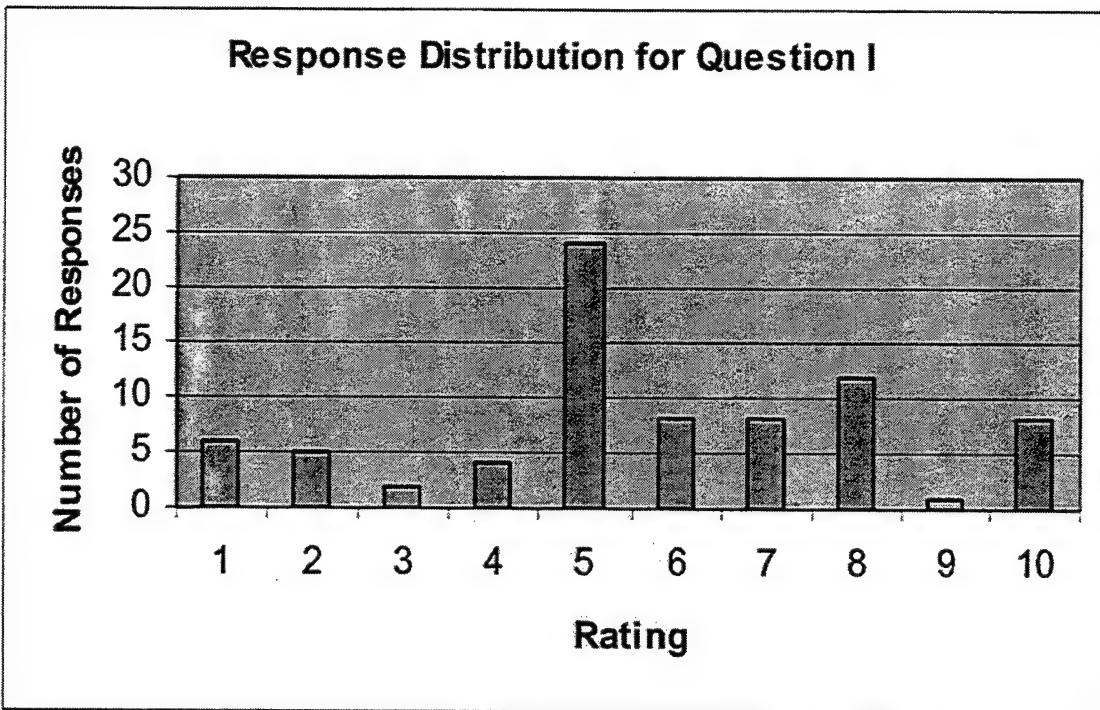


Figure 20. Question I – Response Distribution

The most frequent response was the neutral rating of 5, but there were a significant number of responses over the neutral rating (thirty-six out of seventy-eight or 46%). Only twenty-two percent of the respondents rated this factor below the neutral rating. This indicates that in general the PMCD workforce is satisfied that the work experience they receive at the PMCD organization will help advance their career.

Question J. Benefits – How do you rate the overall benefits package offered by the federal government in terms of life insurance, health insurance and retirement system? This question received an overall rating of 6.5. The distribution of the responses for question J is shown at Figure 21.

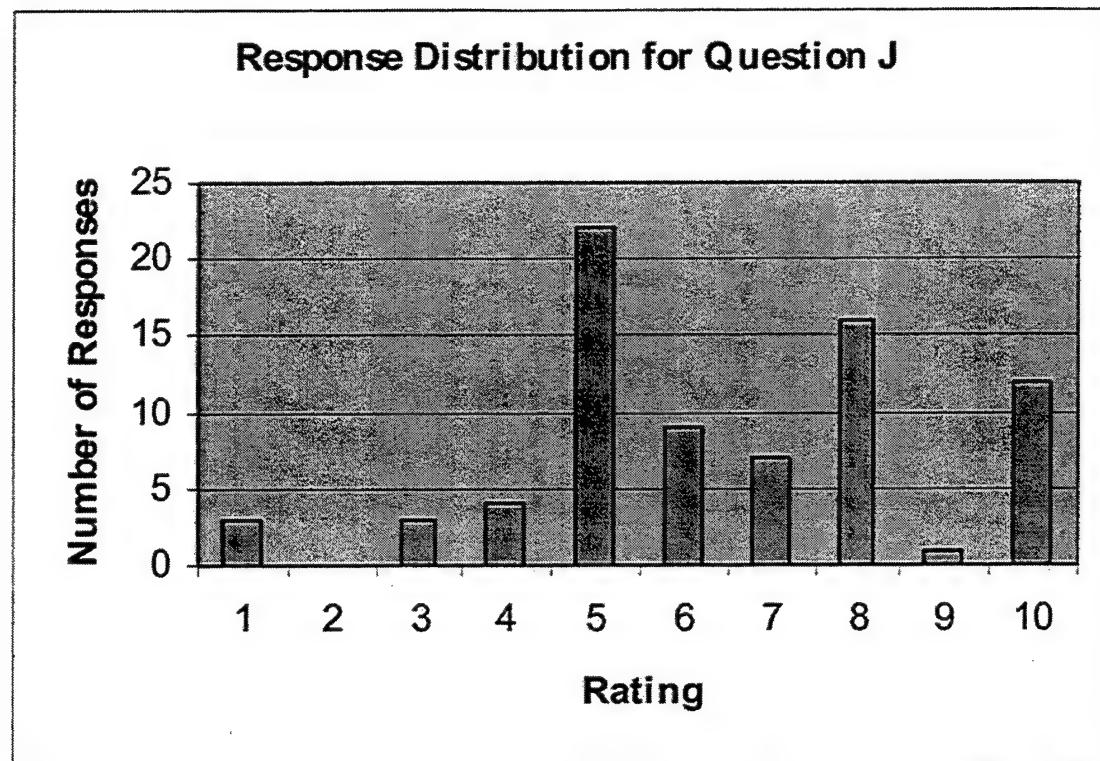


Figure 21. Question J – Response Distribution

The most frequent response was the neutral rating of 5, but there were a significant number of responses over the neutral rating (forty-five out of seventy-eight or 58%). Only thirteen percent of the respondents rated this factor below the neutral rating. This indicates that the PMCD workforce is very satisfied with the benefits package presented to them.

Question K. Physical Working Conditions – How do you rate the physical working conditions of your area to include; the state of your building, furniture, supplies, access, and convenience? This question received an overall rating of 6.4. The distribution of the responses for question K is shown at Figure 22.

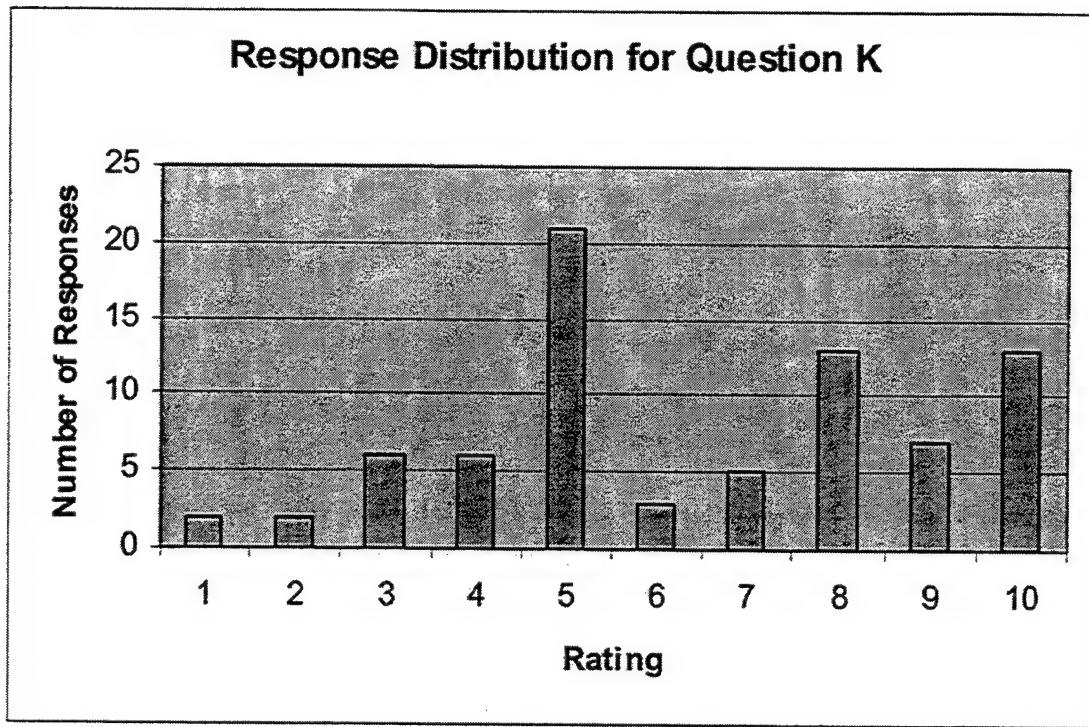


Figure 22. Question K – Response Distribution

The most frequent response was the neutral rating of 5, but there were a significant number of responses over the neutral response (forty-one out of seventy-eight or 53%). Only thirteen percent of the respondents rated this factor below the neutral rating. This indicates that the PMCD workforce is very satisfied with the physical working conditions at PMCD.

Question L. Supervisor Relationships – Are you satisfied with the working relationships you have had with your supervisors in this organization? This question received an overall rating of 6.0. The distribution of the responses for question L is shown at Figure 23.

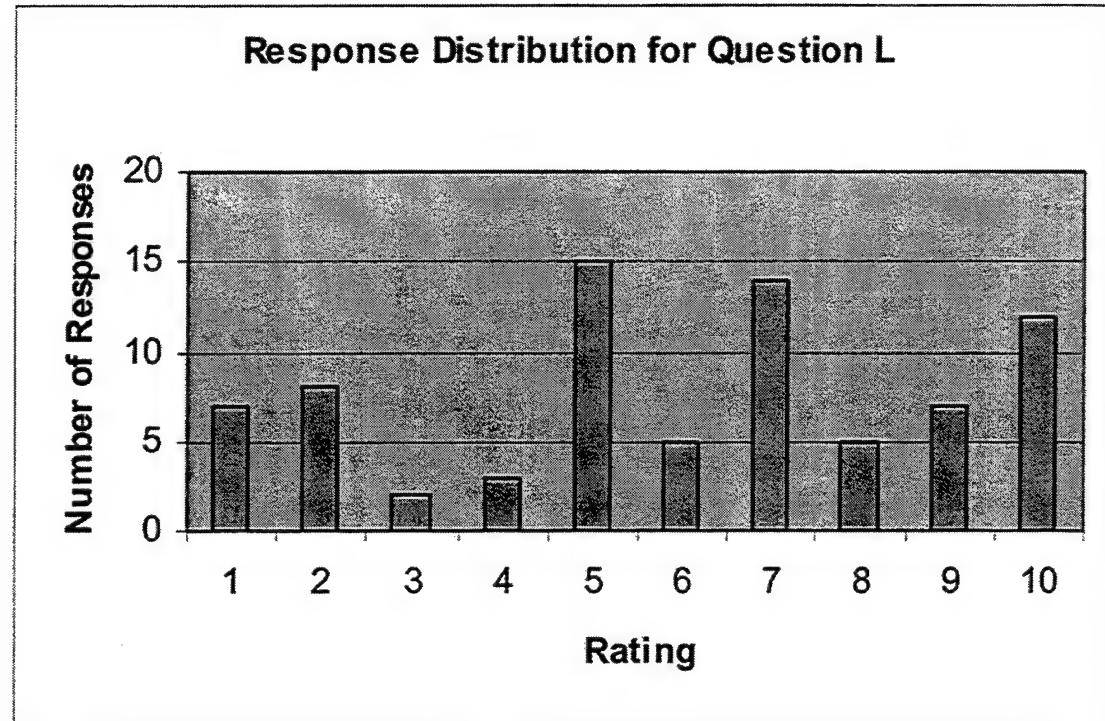


Figure 23. Question L – Response Distribution

The most frequent response was the neutral rating of 5, but there were a significant number of responses both over and under the neutral rating. This distribution is slightly BI-modal with significant groupings above the middle and below. While the majority of the ratings are above the neutral rating of 5 (forty-three out of seventy-eight, or 55%) there is a significant portion (19%) that rated the supervisor relationship at or below 2, highly dissatisfied. This indicates that in general the PMCD workforce is very satisfied with their supervisor relationship, but there is a significant portion that views this relationship very poorly.

Question M. CO2 Considerations a rating of the “civility” of the people in the organization. This question received an overall rating of 4.1. The distribution of the responses for question M is shown at Figure 24.

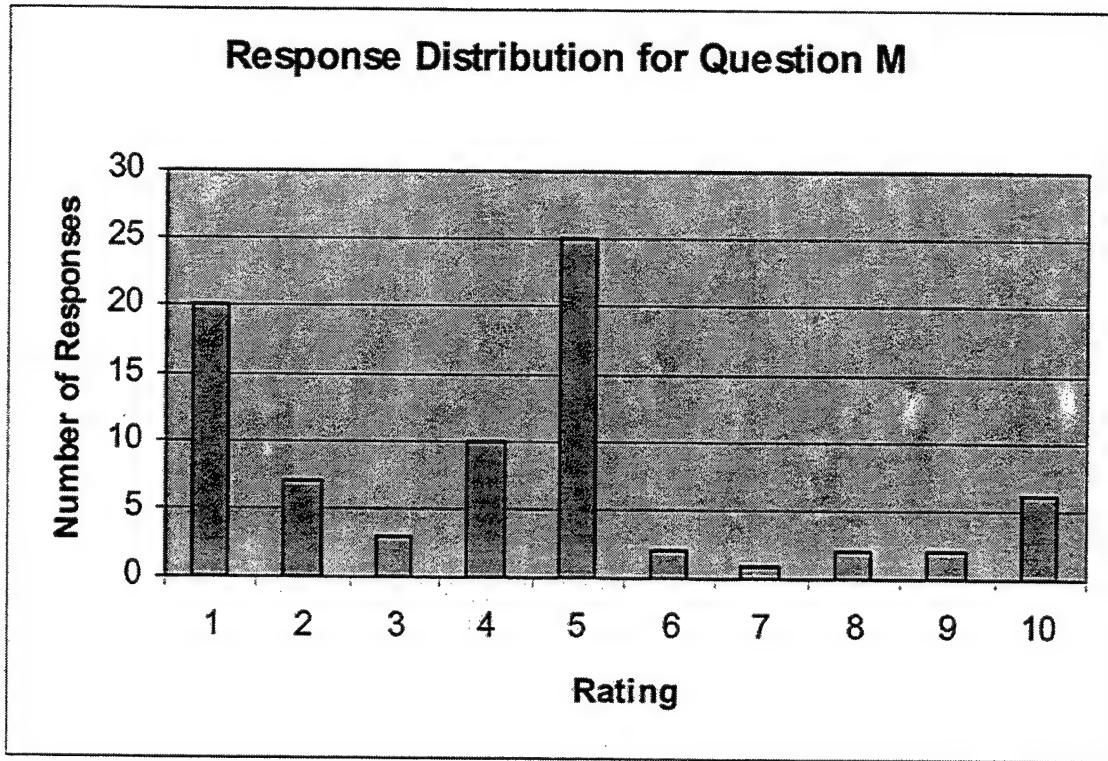


Figure 24. Question M – Response Distribution

The most frequent response was the neutral rating of 5, but there is a very significant number of responses at the minimum level of 1 (twenty out of seventy-eight or 26%). This distribution is skewed to the left with fifty-one percent of the respondents rating this factor below the neutral rating. This indicates that in general the PMCD workforce is very dissatisfied with the perceived "civility" of the people in the organization. Further research into this response indicated that the respondents were confused whether they were rating the interactions of the workforce, or the CO2 program. The results of this question are therefore invalid.

C. SUPPORTING DOCUMENTATION

The items listed as supporting documentation are other data gathered from records, databases and reports. They are other factors under consideration to the thesis questions but not gathered by direct interviews or surveys.

1. Training Records

Training is an important factor in the ability to attract and retain an effective workforce [Ref. 17]. An effective training plan assures the workforce that management has a long-term commitment to their needs and implies that a promotion potential exists. The PMCD organization consists of 246 people. The PMCD organization spent a total of 3908 hours on training in fiscal year 2000. This total does not include any training that was paid for by non-PMCD funds. This means that the PMCD organization paid for, on average, less than 16 hours a year for each person in FY 2000, or about $\frac{3}{4}$ of 1 percent of their total work time. This statistic includes mandatory training (such as Prevention of Sexual Harassment (POSH), Ethics, and Security Awareness), Defense Acquisition University Training, Career Oriented Courses from Colleges and Universities, Conferences, and Computer training.

2. Turnover Data

The turnover rate is also an indication of the workforce's desire to remain with the organization. A total of at least 66 people have left the agency in the last four years. A total of 41 people have left the organization in the last twenty-one months. This is a turnover rate of 9.5 percent per year.

3. Vacancy Data

The numbers of vacancies in an organization are an indication of the ability of the organization to obtain new hires and the willingness of the current workforce to remain with the organization. The current number of vacancies in the PMCD organization, as of the Nov 2000 TDA, is 47. This yields a current vacancy rate of over sixteen-percent for the organization. While a certain number of vacancies is expected to reflect natural attrition rate, a high level of vacancies not only indicates a low level of job satisfaction,

but also exacerbates the training problem as the limited staffing levels hamper the availability of the existing personnel to attend training.

4. Future Staffing Requirements

The future staffing requirements for the PMCD are listed in the PMCD Manpower Requirements/Funding Levels for Outyears report [Ref. 5]. This report lists the manpower requirements requested by the PMCD for FY01 through FY11. The future staffing requirements need to be compared to the mission requirements of each given year to ensure that the proper levels of personnel are retained and requested for each year of the program. The future PMCD staffing requirements, by organizational element, are shown at Figure 7. Figure 7 shows that the PMCD organization will reach its peak staffing requirement in FY 03, and will gradually decline in strength by about seven percent each year through FY 07 until FY 08, at which point the staffing requirements drastically reduce. The PMCD schedule in Figure 8 shows that the PMCD organization will have three operational plants, and one plant under construction, in the peak year of FY 03. There are two other plants that will become operational as shown on the schedule under PUCDF and BGCDF, when the PMACWA selects the destruction technologies and the two plants are finished. The numbers of personnel required to support the efforts at these two locations is not reflected in the numbers presented in the PMCD future staffing requirements document. Therefore, there could be an increase in the actual number of personnel required to support the PMCD mission, which will be specified at a later date when this element of the program is defined. This may be one of the reasons that the PMCD personnel were not as concerned about the end date of the program.

In order to establish if the PMCD will have a problem retaining personnel in future years, a determination must be made whether the current personnel can meet the future requirements. A comparison of the PMCD future year personnel requirements and the current employees is shown at Figure 25.

	FY01	FY02	FY03	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11
Office of the PM	2	0	0	0	0	0	0	0	0	0	2
Deputy PM for Ops	1	0	0	0	0	0	1	1	1	1	1
Deputy PM for Bus Mngt	0	0	0	0	0	0	0	0	0	0	0
Legal Office	1	0	0	0	0	0	0	0	0	0	1
Resource Mngt	16	-8	-8	-7	-6	-6	-4	-4	1	1	1
Public Out Reach	6	-2	-2	-1	-1	-1	-1	1	2	3	6
PEIO	13	-1	-1	-1	1	2	4	8	9	12	12
Eng & Log Office	5	-1	-1	-1	-1	-1	0	5	5	5	5
RW/QA Office	18	-1	-1	-1	-1	0	1	5	10	12	18
Environmental Office	19	-3	-1	-1	1	3	5	11	12	15	15
PMCSO	54	-1	3	5	11	23	27	38	42	44	45
PMCSO Field Offices	48	-27	-34	-29	-22	-16	-14	-10	12	26	34
PMNSCM	32	-6	-6	-6	-6	-6	-6	1	32	32	32
PMATA	16	-5	-5	-5	-4	0	2	11	13	16	16
PMATA Field Offices	9	-9	-13	-14	-14	-14	-8	4	5	9	9
PMCTR	6	-1	0	0	1	1	1	1	1	1	1
	246	-65	-69	-61	-41	-15	8	72	145	177	198

Figure 25. Current versus Future PMCD Staffing Requirements

Figure 25 shows that the current workforce does not match the future years requirements particularly in the next three years. The current PMCD workforce strength is sixty-five people short of the FY 02 requirement. This shortage is particularly acute in the field offices which contain thirty-six of the sixty-five vacancies. The next step in this analysis is to determine the number of current personnel expected to remain with the PMCD in each future year. The PMCD organization can not expect to retain all current employees in the future years of the program. One of the factors in determining the number of personnel who will leave the PMCD is the total number eligible to retire. Although not all personnel will retire upon initial eligibility, the PMCD can expect about sixty-five percent of those eligible to retire to leave as indicated by the responses from question 1, in the personnel survey. The effect of retirements upon the workforce level is shown in Figure 26.

	FY01	FY02	FY03	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11
Office of the PM	0.7	0.7	0.7	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
Deputy PM for Ops	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Deputy PM for Bus Mngt	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Legal Office	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Resource Mngt	1.3	2.6	3.3	3.3	3.3	3.3	3.9	3.9	5.2	5.9	7.2
Public Out Reach	0.0	0.0	0.0	0.7	0.7	0.7	1.3	2.0	2.0	2.0	2.0
PEIO	0.7	2.0	3.3	3.3	3.9	3.9	4.6	4.6	5.2	5.9	5.9
Eng & Log Office	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.7	1.3	1.3
RM/QA Office	0.0	0.0	0.0	0.0	0.0	0.7	2.6	3.9	4.6	5.2	5.2
Environmental Office	0.0	0.0	0.7	0.7	1.3	1.3	3.3	3.9	3.9	3.9	3.9
PMCSO	3.9	4.6	5.9	7.8	7.8	10.4	11.1	11.1	12.4	13.7	14.3
PMCSO Field Offices	2.0	2.0	3.3	4.6	5.9	6.5	7.8	7.8	11.7	12.4	13.0
PMNSCM	2.0	2.0	2.0	2.6	2.6	3.3	3.9	5.2	5.2	5.2	5.2
PMATA	2.0	3.3	3.3	3.3	3.9	3.9	3.9	3.9	4.6	5.2	5.2
PMATA Field Offices	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	1.3	1.3
PMCTR	2.0	2.0	2.0	2.0	2.0	2.6	2.6	2.6	2.6	2.6	2.6
	14.3	18.9	24.1	29.3	32.5	37.1	46.2	50.7	59.2	65.0	68.3

Figure 26. PMCD Expected Retirements by Year

When the effect of the expected number of retirements is added to the current workforce

level its overall effect on future requirements is shown at Figure 27.

	FY01	FY02	FY03	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11
Office of the PM	2	-0.7	-0.7	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	0.7
Deputy PM for Ops	1	0.0	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0
Deputy PM for Bus Mngt	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Legal Office	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0
Resource Mngt	16	-10.6	-11.3	-10.3	-9.3	-9.3	-7.9	-7.9	-4.2	-4.9	-6.2
Public Out Reach	6	-2.0	-2.0	-1.7	-1.7	-1.7	-2.3	-1.0	0.0	1.1	4.1
PEIO	13	-3.0	-4.3	-4.3	-2.9	-1.9	-0.6	3.5	3.8	6.2	6.2
Eng & Log Office	5	-1.0	-1.0	-1.0	-1.0	-1.0	0.0	4.4	4.4	3.7	3.7
RM/QA Office	18	-1.0	-1.0	-1.0	-1.0	-0.7	-1.6	1.1	5.5	6.8	12.8
Environmental Office	19	-3.0	-1.7	-1.7	-0.3	1.7	1.8	7.1	8.1	11.1	11.1
PMCSO	54	-5.6	-2.9	-2.8	3.2	12.6	16.0	27.0	29.7	30.4	30.7
PMCSO Field Offices	48	-29.0	-37.3	-33.6	-27.9	-22.5	-21.8	-17.8	0.3	13.7	21.0
PMNSCM	32	-8.0	-8.0	-8.6	-8.6	-9.3	-9.9	-4.2	26.8	26.8	26.8
PMATA	16	-8.3	-8.3	-8.3	-7.9	-3.9	-1.9	7.1	8.5	10.8	10.8
PMATA Field Offices	9	-9.0	-13.0	-14.0	-14.0	-14.0	-8.0	4.0	5.0	8.4	7.7
PMCTR	6	-3.0	-2.0	-2.0	-1.0	-1.0	-1.6	-1.6	-1.6	-1.6	-1.6
	246	-83.9	-93.1	-90.3	-73.5	-52.1	-38.2	21.3	85.9	112.0	129.6

Figure 27. PMCD Expected Current Personnel versus Future Requirements

Figure 27 shows that the PMCD will not have enough qualified personnel for its future year requirement beginning in FY 02. The shortage will be most acute in the field offices where forty-five percent of the eighty-four vacancies reside. The problem will increase in FY 03 to ninety-three vacancies with fifty-four percent of the vacancies in the field offices. Another problem area is the resource management office, which has a vacancy rate of forty-four percent by FY 02. The discrepancy between the expected retirements, existing vacancies, and the actual requirements for the organization will affect almost

every PMCD office. Until FY 06 every major PMCD office (staffed by more than one person) is expected to need additional personnel. The organization as a whole will require additional personnel through FY 07. FY 08 is the first year in which the PMCD could have more personnel than required spaces.

Another factor in determining future staffing requirements for the PMCD is the job series designation. The following table (Table 8) was constructed to show the number of personnel eligible to retire by job series designation. This will allow the PMCD to focus on those job series that have larger numbers of eligible retirees.

JOB DESCRIPTION	JOB SERIES	FY01	FY02	FY03	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11
CHEMICAL ENGINEER	893	4	5	7	8	8	8	10	10	13	14	14
GENERAL ENGINEER	801	5	5	6	8	10	11	12	13	13	13	13
MECHANICAL ENGINEER	830	1	1	1	2	2	4	5	5	5	6	7
SECRETARY	318	1	1	3	4	4	6	6	7	9	11	11
ENVIRONMENTAL ENGINEER	819	0	0	1	1	1	1	2	3	4	4	4
QUALITY ASSURANCE SPECIALIST	1910	1	1	2	3	3	3	4	5	6	7	8
CHEMIST	1320	4	4	4	4	4	4	5	6	6	6	6
PROGRAM ANALYST	343	2	3	4	4	4	4	5	5	7	8	9
SAFETY ENGINEER	803	0	0	0	0	0	1	2	2	4	4	4
INDUSTRIAL ENGINEER	896	0	0	0	0	0	0	0	0	0	1	2
PUBLIC AFFAIRS SPECIALIST	1035	0	0	0	1	1	1	2	3	3	3	3
PHYSICAL SCIENTIST	1301	1	1	1	1	1	1	2	2	2	2	2
CIVIL ENGINEER	810	1	1	1	1	1	1	1	1	1	1	1
COMPUTER/ELECTRONICS ENGINEER	855	0	1	1	1	1	1	1	1	1	1	1
ENGINEERING TECH	802	0	1	1	1	1	1	1	1	1	1	1
ENVIRONMENTAL PROTECTION SPECIALIST	28	0	0	0	0	1	1	2	2	2	2	2
MANAGEMENT ASSISTANT	344	0	0	0	0	0	0	0	0	0	0	1
OPERATIONS RESEARCH ANALYST	1515	0	1	2	2	2	2	2	2	3	3	3
SAFETY AND OCCUP HEALTH SPEC	18	0	0	0	0	0	0	1	1	2	2	2
BUDGET ANALYST	560	0	1	1	1	1	1	1	1	1	1	1
ELECTRICAL ENGINEER	850	0	0	0	0	0	0	0	0	0	0	0
ENVIRON ENGR/SCIENTIST	809	0	0	0	0	0	0	0	0	0	0	0
MATERIALS MNGT SPEC	1103	0	0	0	0	0	0	0	0	1	2	2
OFFICE AUTOMATION CLERK	326	1	1	1	1	1	1	1	1	1	1	1
PROGRAM MANAGER	340	0	0	0	0	0	0	1	1	1	1	1
PROGRAM SUPPORT ASSISTANT	303	1	1	1	1	1	2	2	2	2	2	2
EDITORIAL ASSISTANT	1087	0	0	0	0	0	0	0	0	0	0	0
SECURITY/PERSONNEL SPEC	80	0	0	0	0	1	1	1	1	1	1	1
SUPPLY TECHNICIAN	2005	0	0	0	1	1	1	1	1	1	1	1
TRANSPORTATION ASST	2102	0	0	0	0	0	0	0	0	0	0	0
CONTRACT ADMINISTRATOR	1102	0	0	0	0	1	1	1	1	1	1	1
AUDITOR	511	0	0	0	0	0	0	0	0	0	0	0
SYSTEM ACQUISITION SPEC	301	0	0	0	0	0	0	0	1	1	1	1
Totals		22	28	37	45	50	57	71	78	91	100	105

Table 8. Eligible Retirees by Job Series

Table 8 indicates that there are three job series that have a significantly larger proportion of the eligible retirees: Chemical Engineers, General Engineers, and Secretaries. In addition, in proportion to the total population of people in the job series, the Program

Analyst series will have a significant number of eligible retirees (42% of the current personnel) by FY 07.

The change in personnel requirements from pre-FY 08 to post FY 08 brings up another problem for the PMCD. How can the PM attract personnel and ramp-up the PMCD staffing from FY 02 to FY 07 when the current workforce, and prospective matrix hires, know that personnel reductions are scheduled from FY 08 until the program completion in FY 11? This question is answered by examining the current recruitment and retention policies in the next section.

D. ANALYSIS OF CURRENT RECRUITMENT AND RETENTION POLICIES

1. Recruitment Policies

Each of the two major methods of recruiting will be analyzed and evaluated for applicability to the PMCD program. The basic hiring policies will be analyzed first, and the current incentives that are available to government managers will be analyzed second.

a. *Hiring Policies*

In addition to the normal process of recruiting through the merit system, there are three other applicable policy exceptions that can be utilized to meet temporary personnel requirements; Temporary Promotions, Intergovernmental Personnel Act (IPA) Assignments, and Consultant and Expert Employment.

(1) Temporary Promotions. Temporary promotions are a viable way for the PMCD to retain qualified employees in the last years of their government careers. A temporary promotion is one way that the organization can attract employees who may be seeking to maximize their high-three-year retirement benefit. In addition the

respondents to the survey question G, indicated that the potential for advancement was one of the lowest rated questions and most in need of improvement.

(2) Intergovernmental Personnel Act (IPA) Assignments. IPA assignments may be able to provide technical assistance or expertise toward the end of the program by utilizing expertise from eligible organizations. However, since IPA assignments can not be made between federal agencies, the PMCD would be limited to utilizing state and local governments, colleges and universities, and federally funded research and development centers. While these sources may be acceptable it is questionable whether these sources have the specific technical expertise applicable to the mission of the PMCD.

(3) Consultant and Expert Employment. Under this policy managers have the authority to employ experts or consultants to meet temporary requirements (up to 1 year). These assignments may be the most applicable and beneficial to the PM in the last year of the program. Again it might be difficult to find the applicable expertise, since this experience is likely to have come from either government workers who have retired or from contract workers from other PMCD sites.

b. *Hiring Incentives*

When the normal hiring policies of the Federal Government prove to be ineffective, there are six other incentives that can be utilized by managers to meet hard to fill personnel requirements. These additional hiring incentives include, Tuition Assistance, Travel and Transportation Expenses for Interviews and New Appointments, Dual-Compensation Waiver, Recruitment Bonuses, Superior Qualifications Appointments, and Student Loan Repayment.

(1) Tuition Assistance. The PMCD may be able to attract new hires out of college with this policy. However it is only applicable for employees who are not looking for long-term employment. It is likely that the fields of environmental policy and computer support, which already demonstrate a high turnover rate could benefit from this policy. Many of the people hired into these fields by the PMCD stay for about two years for experience and then take jobs in industry.

(2) Travel and Transportation Expenses for Interviews and New Appointments. This policy may help the PMCD to attain more interviews, but may not have an effect on the actual ability to hire new prospective employees. This policy is of limited use to the PMCD.

(3) Dual-Compensation Waiver. This policy may be the most applicable hiring incentive for the PM's needs. The use of this policy could allow the PM to attract former employees to perform those tasks which are inherently governmental, and for which the PM is prohibited from utilizing contractor support.

(4) Recruitment Bonuses. To attract superior candidates, managers have the option to pay a lump-sum recruitment bonus of up to 25% of the annual rate of an employee's basic pay. If government pay really does lag industry by 32% [Ref. 2:p. B02] then these bonuses will not even offset the existing gap between civil service and private sector offers. These bonuses can be used in theory to attract employees and then get them to sign an agreement to complete a specified period of employment with the agency. This policy can be effective at ensuring coverage in later years. However, a serious limitation on the use of retention bonuses for the PMCD is that they are only applicable to newly appointed government employees; they cannot be used to attract

matrix personnel, or competitive hires, from other government agencies. So the PMCD must have outside hiring authority before he can use this option.

(5) Superior Qualifications Appointments. This incentive can be used to pay an employee at a higher step within the initial hiring grade on the basis of their "superior qualifications" for the position, or because of special needs of the agency. This policy may be effective in attracting employees toward the end of their government career, who may be dead-ended in their current job. It can be used to compensate a current government employee in the same way as the recruitment bonus can be used to incentivize a potential non-government recruit.

(6) Student Loan Repayment. Like the tuition assistance incentive, this policy may be effective for attracting employees who are not looking for long-term employment and have substantial student loans to repay. It is likely that the fields of program or budget analysts, environmental policy, and computer support, may be good candidates for this policy. These positions are the professional fields in PMCD, which are not chemical specific and do not require long term experience.

2. Retention

There are a number of applicable policies that the PMCD can utilize to persuade valuable employees to remain with the program. These policies encourage the recognition of employees, training programs, and special policies that include the creation of flexible hours and work schedules, and implementing part-time jobs. There are policies that allow pay flexibility such as the use of a demonstration project that allows for the waiver of some existing laws and regulations. In a survey performed by the Merit Systems Protection Board in 2000, 7000 former federal employees were asked to indicate which

factors were influential in their decision to leave government service [Ref. 17:p. B02].

Their top five answers, in priority order, were as follows:

- The desire to make better use of their skills and abilities
- Increased opportunities for advancement
- The desire to earn more money
- Improved opportunities for training
- Lack of recognition for outstanding performance

a. Recognition

(1) Cash Awards. Managers are authorized to grant a cash award to an employee to recognize accomplishments that contribute to the efficiency, economy, or other improvement of government operations. The responses from the PMCD employees on question F of the survey, indicates that a significant portion of the PMCD workforce is not satisfied with the amount or type of recognition given them. Also the desire to earn more money was the third highest reason given for leaving the federal government by former employees [Ref. 17:p. B02]. Therefore a cash award should be an effective incentive for retaining the PMCD workforce.

(2) Time-Off Awards. Managers may authorize time off from duty without charge to an employee's leave or the loss of pay, as an award. The PMCD employees indicated in question D of the survey that they were very satisfied with the flexibility of their current job schedule. Employees indicated that it was hard to get time off already. Additional time off is not likely to be an effective incentive measure.

(3) Career Ladders. Agencies have the authority to establish career ladders that allow for a noncompetitive promotion for employees, based on their performance and the acquisition of appropriate knowledge and skills. The responses

from the PMCD workforce through the survey questions would indicate that this would be an effective incentive measure. The employees rated the potential for advancement in the PMCD organization the lowest of any factor in the survey. This would indicate that establishing career ladders would be an effective measure to promote advancements. However, since this program is for entry level personnel and PMCD has virtually no entry level personnel (as indicated in Table 5), and it requires two to two and a half years of sequential promotions, this method will not be effective for the PMCD organization. In the event that the program schedule was increased, this alternative might become a viable option for consideration.

(4) Quality Step Increase. Managers may grant an accelerated increase in an employee's pay by giving an employee a quality step increase. A quality step increase gives an employee an effective raise each year for the rest of his or her career. Therefore, this policy will be most effective for younger employees with future years of government service ahead of them. This method would not be an effective way of retaining older employees within a year or two of retirement. Given the demographics of the PMCD workforce, this method could be effective in retaining mid-level managers with careers that will extend beyond the PMCD mission length.

b. Training Employees

The overall rating of training by the PMCD employees under survey question H, indicated that the workforce was neither satisfied nor dissatisfied in general with the amount and type of training they received. However this also means that all ratings at or below the neutral rating (seventy-three percent) could be positively influenced by better training opportunities.

(1) Job-Related Training. Managers can use job related training to provide employees with any training or education that improves their performance or the performance of the organization. This training must be deemed applicable to the achievement of the agency's mission and performance goals. This limits the utility of this option since training must be linked to employee's current duties, and can not be used to gain knowledge for future assignments outside the PMCD. However, it can be used to cross-train employees into fields that may provide them a more secure future.

(2) Reimburse Training and Education Costs. This policy allows for more flexibility in training than the job-related training sited above. This policy allows for training that can be used for future employment. The training does not have to be directly related to the employee's current job. Its only limitation is that it can not be used directly to earn a college degree for the employee.

(3) Pay for Academic Degree. This policy allows for the use of a variety of methods to improve performance and productivity, including the use of academic institutions. Specifically, a manger can authorize and pay for training leading to an academic degree when necessary to help recruit or retain employees in shortage occupations, especially those with critical skills. This exception makes this the most viable option for use by the PMCD to retain employees through training options. The promise of a college degree (bachelors or higher), could aid in the retention of employees at the PMCD through their class and the mandatory payback period.

(4) Rotational Assignments. DoD policy encourages acquisition workforce development through experimental assignments in multiple functions and organizations. The PMCD may be able to fill some critical acquisition positions by

utilizing acquisition workforce personnel in one or two year rotational assignments. These rotational assignments would be most applicable for the administrative and support functions, and not the technical or managerial functions, which require more specific technical expertise in the chemical field.

c. *Special Policies*

There are several policies that fall under the heading of special policies, which were created to allow flexibility for government managers in the unique situations of today's job market. Because federal compensation apparently lags behind the private sector [Ref. 18:p B02], these additional policies have been added to allow the government to compete with private industry for new recruits and retain the current civilian staff. These policies include; retention allowances, relocation bonuses, and the creation of flexible working conditions.

(1) Retention Allowances. This policy allows managers to pay employees an allowance of up to 25% of their basic pay per year, to retain an employee when a special need for the employee's services exists. This special need can be the employee's unusually high or unique qualifications. This policy is only applicable to employees who would be likely to leave the federal service without the allowance. The PMCD employees indicated in survey question A, that they were generally satisfied with their current pay. However, since the desire to earn more money is third in the top five reasons that federal employees left the federal government [Ref 18:p. B02], this would indicate that increased pay could be an effective incentive for retaining PMCD employees.

(2) Relocation Bonuses. The use of a relocation bonus may be an effective way for the PMCD to encourage employees to fill the vacancies that exist in the

PMCD field offices. The PMCD currently has 47 vacancies of which 20 are in field office positions. The PMCD employee survey respondents indicated that only 9% would consider taking a field office job for a lateral, but that figure increased to 27% for a promotion. This indicates that money is a factor in this decision. Utilizing this policy would increase the promotion potential of a field office job to a monetary equivalent of approximately three grades. This could be also be used to retain employees once they have taken field office jobs since in return for the bonus, the employee must sign a written agreement to complete a specified period of employment with the agency in that position.

(3) Flexible Working Conditions. PMCD employees currently have access to flexible schedules. These options include part-time work and job-sharing arrangements. In addition the PMCD currently utilizes variable work schedules to include, four 10-hour days, and SDOs, which allow employees to work nine-hour days and take one day off every two weeks. The use of these policies has already mitigated whatever retention problems in the PMCD it can. The PMCE employees rated survey question D, job flexibility, the highest of any factor in the survey. Expansion of this policy could increase its effectiveness somewhat, but it will become a diminishing return.

d. The DoD Civilian Acquisition Workforce Personnel Demonstration Project

The designation as a personnel demonstration project provides an agency with additional flexibility through the entire government human resources management system. Its features include, streamlined hiring, broadbanding, a simplified classification system, and a Contribution-Based Compensation and Appraisal System (CCAS). This one policy provides many of the benefits of several of the other policies combined. Since

this policy has such a wide range of applications it may be the single most useful policy to the PMCD.

E. SUMMARY

The survey data analysis section covered the findings of the personnel database, the home office survey, the supporting documentation, and the analysis of the current recruitment and retention policies. The personnel database showed the basic demographics of the PMCD workforce and indicated that the attrition rate will be affected by the retirement systems and ages of the PMCD workforce. The home office survey indicated the preferences and expectations of the PMCD workforce in their responses to the twenty-question survey. The supporting documentation section provided insight into historical data on training, turnover, vacancy rate, and future staffing requirements for the PMCD organization. The current recruitment and retention policies section compared the PMCD workforce survey responses to the current policies to match the employee preferences with policies that offer a similar benefit.

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VII. CONCLUSIONS AND RECOMMENDATIONS

A. INTRODUCTION

The primary purpose of this thesis is to investigate the problems of retaining qualified personnel in the PMCD through the end date of the program. To accomplish this the PMCD organization was analyzed from an open system prospective to identify the elements within the organization, and in the larger organizational environment, that are expected to contribute to the retention problem. In addition the current PMCD workforce demographics were examined and a survey was performed to determine relevant retention and recruitment policies for the PMCD. This chapter presents the conclusions and recommendations derived from the analysis of the previous chapters.

B. GENERAL CONCLUSIONS

This thesis concludes that the PMCD has the potential to have a significant number of unfilled positions due to turnover, vacancies, and retirements within the next two years. The problem of recruiting and retaining personnel in the PMCD organization is not caused directly by incongruencies in the relationships of the internal organizational elements. Rather, these problems have been caused by incongruencies in the relationship of the organization's input factors and the organizational strategy. Although the Nadler and Tushman Model for Diagnosing Organizational Behavior [Ref. 6] does not indicate that major changes are necessary to the internal organizational factors of the PMCD, some minor changes to the formal organization, specifically to the HRM and training functions, are necessary for implementing the thesis recommendations. The retention of qualified personnel in the PMCD organization will be affected by several factors that

reflect the desires and behavior of the current employees. There are several current recruitment and retention policies that could aid the PMCD in minimizing the effect of attrition on the future PMCD organization.

C. SPECIFIC CONCLUSIONS

1. Magnitude of the Problem in PMCD

The PMCD will be facing a significant problem of meeting its required staffing levels beginning in FY 02 and reaching a peak in FY 03. In FY 02 the PMCD is estimated to have approximately 84 vacancies to fill above its required staffing level. In FY 03 that number will increase to 93. This is a cumulative number, and indicates nine additional vacancies in FY 03. There are currently 22 people in the PMCD organization who are eligible for retirement. About 14 are expected to retire this year, given the retirement rate of 65% as indicated by the employee responses in survey question number

1. By FY 07, the CWC treaty end date, the current PMCD workforce of 246 will have 71 people eligible for retirement. The estimated end date of the program is FY 11. By FY 11 approximately 43% of the current workforce (105 out of 246) will be eligible for retirement.

The attrition rate of the PMCD workforce will affect the Chemical Engineering, General Engineering, Program Analyst, and Secretarial job series most significantly. This is due in part to the large proportion of these job classifications in the current organizational structure. In general the retirement distribution is proportional to the relative number of personnel in the job series. No job series demonstrates a significantly disparate rate of retirement.

The PMCD organizational elements that are most affected by attrition are the PMCSD Field Offices. It is estimated that the PMCSD Field Offices will have approximately 37 vacancies by FY 03. Other PMCD organizational elements that will be significantly affected by attrition are the PMATA Field Offices, the Resource Management Office, the PMATA and the PMNSCM.

2. Analysis of the PMCD Internal Organizational Factors

The results of the Nadler and Tushman Model for Diagnosing Organizational Behavior [Ref. 6] indicate that the problems associated with the retention of personnel in the PMCD organization do not lie in the relationships between the internal components in the PMCD organization. The key PMCD organizational components to include the mission and task, the basic characteristics of the individuals in the organization, and the structure of the formal organization are described in chapter V of this thesis. The PMCD organizational elements of task, individual, and organizational structure exhibit a high state of congruence. The demands, needs, goals, and structure of the components are consistent with each other.

3. Analysis of the PMCD External Input Organizational Factors

The results of the Nadler and Tushman Model for Diagnosing Organizational Behavior indicate that the problems associated with the retention of personnel in the PMCD organization lie in the incongruencies in the relationships between the external inputs to the organization, the organizational strategy, and the PMCD organization. The relationships of the PMCD organization and its input elements, to include the environment, resources, organizational strategy and the formal organization are described in chapter V of this thesis. The PMCD system elements of environment, resources, organizational strategy, and the formal organization, exhibit a low state of congruence.

The demands, needs, goals, and structure of the components are inconsistent with each other. The short-term organizational strategy and the organizational structure do not fit with the long-term goal of recruiting and retaining personnel. These inconsistent fits indicate that a change to one or more of these elements is advised. The PMCD has little influence over the input factors of environment and resources. They are determined by a multitude of stakeholder interactions of collaboration and competition. The PMCD can have an effect on the organizational strategy, and should focus his efforts here.

4. The Factors that influence the Recruitment and Retention of the Current PMCD Employees

The two major factors influencing the recruitment and retention of the current PMCD employees are retirement eligibility (which is a function of age and retirement system), and the perception that potential employers (contractors) pay better than government service jobs. Other factors relating to the general sense of satisfaction of the workforce that are significant are pay, job stability, job flexibility, the potential for advancement, job benefits, physical working conditions, and the issue of consideration of others.

There are several of these factors that were highly rated by the PMCD workforce indicating a positive sense of satisfaction. These factors must be maintained to encourage the retention of the current employees. In general the workforce is satisfied with the pay they receive. In general the workforce is very satisfied with the stability of their jobs. It is interesting to note that the number of respondents who rated job stability a ten (the highest rating) corresponds directly to the number of current employees who can retire within the current program schedule. Job flexibility was the highest rated factor. The PMCD workforce is very satisfied with the flexibility of their job structure. The PMCD

workforce rated their benefits consistent with job pay, indicating that they are very satisfied with their overall compensation package. Lastly the PMCD has improved the buildings and facilities of the organization over the last five years. The workforce indicated that they are very satisfied with the physical working conditions at the PMCD organization.

There were three factors which were rated poorly. The lowest rated factor in the survey was the potential for advancement. The PMCD workforce does not see a favorable potential for advancement within the PMCD organization. This factor could cause low to mid level employees to seek employment outside the PMCD organization. Recognition was rated low on the basis of the distribution of the responses and not the average score. Recognition was rated a neutral five overall, but forty-one percent of the respondents rated it below five. Fifteen percent gave it the worst possible rating of one. This indicates that while the majority of the PMCD workforce is neither satisfied nor dissatisfied with the recognition they receive, a significant portion is very dissatisfied. The third factor that was rated low was the issue of consideration of others. While this factor was rated poorly, follow-up interviews with several respondents indicated that there was confusion in the interpretation of the survey question. People were confused whether they were rating the actual conditions within the PMCD, or rating the administration of the CO2 program. As a result while the CO2 factor was poorly rated, it may not indicate a real problem to the PMCD.

5. Current Recruitment and Retention Policies that are Applicable to the PMCD Organization

There are several current recruitment and retention policies that have potential application to the PMCD. Recruitment encompasses hiring policies and hiring

incentives. There are two hiring policies that can be utilized by the PMCD: temporary promotions, and consultant and expert employment. There are two hiring incentives that demonstrate a wide applicability to the PMCD situation, and three others that can be applied in specific situations. The superior qualifications appointment, and the dual compensation waiver incentives, can be applied to any current government employees joining the PMCD organization. Policies that have limited applicability include: tuition assistance, student loan repayment, and recruitment bonus. The tuition assistance and student loan policies are only applicable to employees who want to attend or just finished college. The recruitment bonus is only applicable to potential employees from outside the federal government.

The current government downsizing initiatives limit the amount of external hires available to government agencies. It is therefore imperative that the PMCD seek to retain the current employees to meet the organizational staffing requirements. Retention policies are divided into three categories, those that encompass, recognition, training, and other 'special' policies that can be applied with the greatest degree of flexibility. There are several policies that can provide recognition to the current employees to encourage retention. The policies that are recommended for use by the PMCD include cash awards, and quality step increases. The cash award policy has the widest applicability. The quality step increase policy is applicable to those employees who seek a continued career with the government. Training policies can be used to encourage the retention of government employees by increasing an employee's potential for advancement. There are several training policies that can be applied to the PMCD organization. The most effective policy was determined to be the pay for academic degree policy, which provides

the employee the greatest increase in potential for advancement. The most applicable retention policies for the PMCD organization fall under the special policies category. The two major policies that can be utilized by the PMCD are the retention allowance and the relocation bonus. The retention allowance is designed to encourage current employees to stay with the government, when they are offered jobs outside the government. This policy can help the PMCD in situations where specific individuals within the organization might otherwise leave for private industry. The relocation bonus can be used by the PM to attract employees to the various PMCD field office jobs, which currently demonstrate a high level of vacancies.

The last policy that can be utilized by the PMCD to mitigate potential recruitment and retention problems, is the DoD Civilian Acquisition Workforce Personnel Demonstration Project. This policy is actually several policies and policy waivers which when combined give an agency greater flexibility in the recruitment, hiring, and retention of employees.

D. RECOMMENDATIONS

The Program Manager for Chemical Demilitarization can not appreciably affect his organizational inputs of environment or resources. Forces outside the organization determine them. However, he can influence the organizational strategy. The PMCD can attempt to bring the PMCD organizational strategy into congruence with the organizational requirements. One way to accomplish this is to negotiate a transition policy with another agency, such as SBCCOM, to allow for the orderly transition of the PMCD workforce upon completion of the Chemical Demilitarization mission. Such a plan would ensure the long-term employment of the remaining workforce and encourage

retention of employees throughout the final closure of the program. It would also allow the PMCD to recruit more effectively because the organization could offer more stable employment. This can also be accomplished by publicizing a long-term chemical demilitarization schedule. This does not mean recommending that the PM breach the treaty schedule. However, in the event that the Congress determines that due to funding, schedule, technical, or political reasons, it is more advantageous to the government to slow down the chemical demilitarization program, an early dissemination of this information to the PMCD workforce could prevent employees from leaving the organization for what they perceive to be more stable employment.

In the short term the PM can utilize those recruitment and retention policies recommended in the conclusions section to mitigate the impending attrition problem. The most applicable policies are the retention allowance and the relocation bonus. The PM can seek to establish the PMCD organization as a DoD Civilian Acquisition Workforce Personnel Demonstration Project. This designation would provide the PMCD with additional flexibility in human resources management.

APPENDIX A: GOVERNMENT RETIREMENT SYSTEMS

Type of Retirement	Minimum Age	Minimum Service (Years)	Special Requirements
Optional	62	5	None
Optional	60	20	None
Optional	55	30	None
Special Optional	50	20	Special Optional - Must retire under special provisions for air traffic controllers or law enforcement and firefighter personnel. Air traffic controllers can also retire at any age with 25 years of service as a civilian air traffic controller.
Early Optional	Any Age*	25	Early Optional - The agency must be undergoing a major reorganization, reduction-in-force, or transfer of function as determined by the U.S. Office of Personnel Management.
Discontinued Service	Any Age*	25	Discontinued Service - Separation must be involuntary and not removal for misconduct or delinquency.
Disability	Any Age	5	Disability - Must be disabled for useful and efficient service in your current position and any other vacant position at the same grade or pay level within your commuting area and current agency for which you are qualified.*
	* Annuity is reduced if under age 55.		* Application must be prior to retirement, or within 1 year of separation, except in cases of mental incompetence.

Table 9. Retirement Options

The basic annuity for the CSRS is computed based on the length of federal service and "high-3" average pay. The "high-3" average pay is the highest average basic pay earned during any 3 consecutive years of service. The second option is the FERS system, which is a three- tiered program consisting of the Thrift Savings Plan (TSP), Social Security, and a FERS annuity. The platform for FERS is TSP. The FERS annuity is

based on 1% of the employee's average high 3 years salary times the number of years worked. The intent in the establishment of FERS was to have a flexible, portable retirement system for which the individual employee is accountable.

Employees under either the CSRS or the FERS are eligible for optional retirement if they are at least 55 with at least 30 years of service; age 60 with 20 years of service; or age 62 with 5 years of service. An employee under FERS is also eligible for an immediate annuity if he/she has at least 10 years of service and has reached the minimum retirement age.

APPENDIX B: EMPLOYEE SURVEY QUESTIONNAIRE

Survey Questions

1. Do you plan on retiring, or leaving government service at your earliest eligible date?
Yes ____ No ____.

2. Do you believe that the PMCD will finish the destruction of the stockpile by 29 April 2007?
Yes ____ No ____.

3. How many years have you worked for PMCD or its predecessor organizations? ____.

4. Have you received any government-sponsored training (other than mandatory) in the last year?
Yes ____ No ____.

5. Circle One. Do you think that a PMCD government support contractor's pay and benefits are
less than, equal to, or more than a similar government worker's pay and benefits.

6. Are you concerned about the possibility of a RIF (reduction-in-force) action in PMCD when
the PM mission is completed? Yes ____ No ____.

7. Prior to the completion of the PMCD mission, would you move to another State to gain a
promotion (Either within or external to PMCD)? Yes ____ No ___, for a lateral? Yes ____ No
____.

8. Check One. Is your position Matrix ____ or Core____?

9. Check One. Is your retirement system CSRS (the old system prior to 1987) ____ or FERS
____?

10. Would you be interested in any of the vacant PMCD field office jobs for which you could
qualify for promotion? Yes ____ No ___, for a lateral? Yes ____ No ____.

Please rate the following factors from 1-10 for your present job:

10 – Highly Satisfied

5 - Neither Satisfied nor Dissatisfied

1- Highly Dissatisfied

- ____ A. Pay
- ____ B. Job Satisfaction
- ____ C. Job Stability
- ____ D. Flexibility (SDO, Flex Schedule, etc.)
- ____ E. Amount of TDY
- ____ F. Recognition
- ____ G. Potential for Advancement
- ____ H. Training
- ____ I. Experience (relevance to future employment)
- ____ J. Benefits
- ____ K. Physical Working Conditions
- ____ L. Supervisor Relationships
- ____ M. CO2 Considerations (consideration of others)

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APPENDIX C: THE PMCD ORGANIZATION AND FUNCTIONS

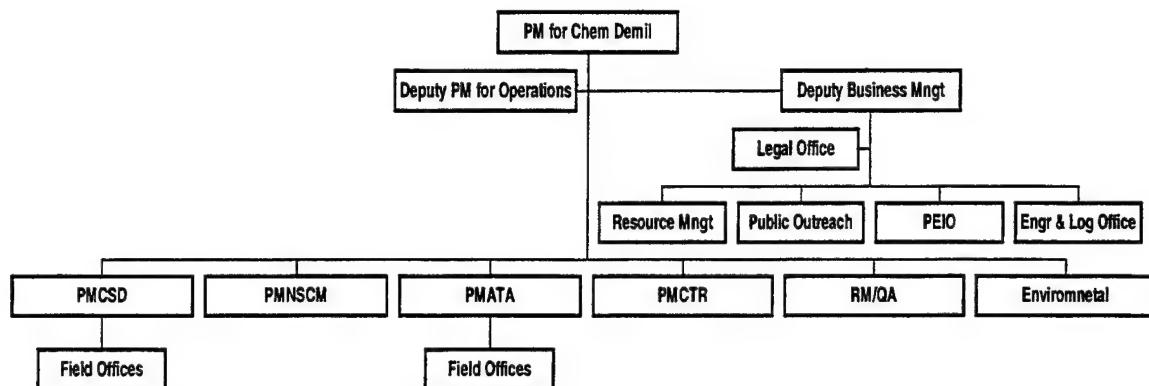


Figure 28. The PMCD Organization

The present PMCD organization consists of the following subordinate project/product elements: Project Manager for Chemical Stockpile Disposal (PM CSD), Product Manager for Non-Stockpile Chemical Materiel (PM NSCM), Project Manager for Alternative Technologies and Approaches (PM ATA), and Product Manager for Cooperative Threat Reduction (PM CTR).

In addition to the subordinate PM offices, the PMCD organization contains the several business support elements that are designed to support both the office of the PM and the Project and Product Managers in general business areas. These support elements are under the Deputy Business Manager and they include: Program Evaluation and Integration Office (PEIO), Engineering and Logistics Office, Resource Management Office (RMO), Environmental and Monitoring Office, Risk Management and Quality Assurance Office (RM/QA), and the Public Outreach and Information Office (POIO). A description of the functions and tasks assigned to each element of the PMCD

organization as described in the PMCD Mission and Major Functions Statement (10-1) [Ref. X] follows.

(1) Program Evaluation and Integration Office. The primary responsibility of the PEIO is to manage and coordinate programmatic oversight and integration across all service mission areas, establishing the basis for fostering programming stability.

(2) Resource Management Office. The primary responsibility of the RMO is to serve as the principal advisor to the PM and his staff on all aspects of financial and resource management, including business planning, programming, budgeting, cost and economic analysis, manpower management, and performance measurement.

(3) Public Outreach and Information Office. The primary responsibility of the POIO is to serve as the principal advisor to the PM and his staff on all aspects of public outreach and information activities.

(4) Engineering & Logistics Office. The mission of the Engineering and Logistics Management Office is to serve as the principal advisor to the Program Manager (PM) and his staff on chemical disposal aspects relating to system design and acquisition, logistics management, materials management, Chemical Weapons Convention (CWC) compliance, technology analysis and evaluation, and related disciplines. Provides matrix support in these disciplines to Project and Product Managers' Offices.

(5) Legal Office. The primary responsibility of the Legal Office is to provide an environmental law counselor to help comply with Federal, state, and local

environmental laws and regulations. Provides guidance on all matters involving military and domestic law, state and local law, foreign international law, United States statutes, and federal regulations.

There are also two professional support functions at the staff level that are required by each of the subordinate PMs. These functions are set up independent of the PMs but assign persons to each of the PMs in accordance with their perceived needs. These functions include the Risk Management and Quality Assurance Office and the Environmental & Monitoring Office.

(1) RM/QA. The primary responsibility of the RM/QA is to serve as the principal advisor to the PM and his staff on all aspects of safety, industrial hygiene, surety, occupational health, physical security, quality assurance and control, materiel management, configuration management, ammunition surveillance, and medical surveillance and support.

(2) Environmental and Monitoring. The primary responsibility of the EMO is to serve as the principal advisor to the PM and his staff on all aspects of environmental, laboratory, and monitoring matters.

The major elements of the PMCD Organization are the Subordinate Project/Product Offices. These offices contain over two thirds of the civilian employees in PMCD. A short description of the major responsibilities for each subordinate PM office follows.

(1) PMCSD. The primary mission of the PMCSD is to destroy the U.S. stockpile of unitary chemical weapons in a safe and environmentally sound and cost-effective manner in accordance with applicable federal, state, tribal and local laws,

policies, regulations, treaty requirements and directives. To perform this function the PMCSD must plan and direct the destruction and disposal of the stockpile of unitary lethal chemical agents and munitions by managing and directing life cycle execution of the Chemical Stockpile Disposal Program. Directing the development, design, acquisition, construction, installation, systemization, operations, and closure of each phase of each facility does this. Contractors primarily perform the work of the actual destruction of the chemical materiel PMCSD, and as such the PMCSD staff members serve as Contracting Officer Representatives (CORs) for all the contracts produced to accomplish the above work.

(2) PMNSCM. The primary mission of the PMNSCM is to dispose of non-stockpile chemical materiel in a safe and environmentally sound and cost effective manner in accordance with applicable federal, state, tribal and local laws, policies, regulations, treaty requirements and directives. To perform this mission the PMNSCM plans and directs the disposal of non-stockpile chemical materiel to include binary chemical weapons, recovered and buried chemical warfare materiel, former production facilities, and miscellaneous chemical warfare materiel (as defined under the provisions of the Chemical Weapons Convention or as otherwise directed.) He must develop procedures, techniques, and equipment for characterizing, storing, treating, transporting, and disposing of Non-Stockpile Chemical Materiel. He also manages and directs the development, design, acquisition/fabrication, systemization, and operations (to include mobilization and demobilization) phases of several projects. The PMNSCM must manage project and systems contract award activities by directing and controlling the system and project contractors responsible for implementation of all phases of the

program. As such the PMNSCM staff members serve as Contracting Officer Representatives (CORs) for several contracts produced to accomplish this work.

(3) PMATA. The primary mission of the PMATA is to establish the feasibility (through pilot-scale testing and possibly through stockpile demilitarization) of safe and environmentally sound alternative processes for chemical agent disposal at the Aberdeen Proving Ground, Maryland, and Newport, Indiana, sites. They also are responsible for developing the technical information required to support pilot testing, including facility design and environmental permit applications. The PMATA monitors developments in the commercial sector related to chemical demilitarization, and manages and directs the development, design, acquisition, construction, installation, systemization, operations, and closure phases of each facility. To perform this task the PMATA staff members serve as CORs for several systems contracts for the design, systemization, construction, testing, operation, and closure, of two proposed chemical demilitarization facilities.

(4) PMCTR. The primary mission of the PMCTR is to provide life cycle management and execution of all approved DoD support activities to non-U.S. chemical weapons destruction programs, including support to the United Nations. This mission entails providing technical guidance and advice to United States negotiators on issues related to the destruction of chemical weapons.

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